GEOLOGIC 02-FEB-2011 PAGE: 1

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 195 6940 Date of Summary: 20-SEP-2000 First Sample Examined: Lease Number: G20831 Source of Paleo: OPERATOR 10853 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10000 **Drilling Operator: HESS CORPORATION API Well Number:** 608054001400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 6940 - 10853 5256 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
6940 /	6940	DEF	AT first sample examined	DEF	AT	5
7870 /	7864	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
8140 /	8123	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
8290 /	8264	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
8620 /	8558	DEF	AT	DEF	AT	5
10030 /	9447	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10060 /	9467	DEF	AT	DEF	IN	5
10210 /	9565	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
10360 /	9666	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
10540 /	9788	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	IN	5
10690 /	9889	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
10853 /	9999	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 2

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 195 Date of Summary: 20-SEP-2000 First Sample Examined: 6940 Lease Number: G20831 Source of Paleo: OPERATOR 10853 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10000 **Drilling Operator: HESS CORPORATION API Well Number:** 608054001400 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 6940 - 10853 5256 Water Depth: Public Info Code: Y 31-OCT-2008 Ecozone Eq MMS: N Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		<b>Ecozone</b>
6940 /	6940	DEF	AT first sample examined	DEF	AT
6941 /	6941	POS	IN Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
7510 /	7510	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7960 /	7950	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8110 /	8094	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
8170 /	8151	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
8500 /	8455	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
9940 /	9391	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10000 /	9428	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10120 /	9505	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
10150 /	9525	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10240 /	9585	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
10270 /	9606	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10360 /	9666	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
10450 /	9727	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
10540 /	9788	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
10630 /	9849	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
10853 /	9999	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 3

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 529 Date of Summary: 22-FEB-2007 5490 First Sample Examined: Lease Number: G27691 Source of Paleo: OPERATOR 6488 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 6488 **Drilling Operator:** W & T OFFSHORE INC **API Well Number:** 608054003500 **Rkb Elevation:** 86 **Sample Range:** 5490 - 6480 Paleo Report Num: 1 of 1 Water Depth: 4002 Public Info Code: Y 21-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5490 / 5490	DEF	AT first sample examined	DEF I	N 5
5491 / 5491	DEF	IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF I	N 5
5492 / 5492	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF I	N 5
5520 / 5520	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF I	N 5
5550 / 5550	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF I	N 5
5669 / 5669	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF I	N 5
5670 / 5670	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF I	N 5
5700 / 5700	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF I	N 5
5729 / 5729	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF I	N 5
5730 / 5730	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF I	N 5
5790 / 5790	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF I	N 5
5819 / 5819	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF I	N 5
5820 / 5820	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF I	N 5
5940 / 5940	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF I	N 5
5970 / 5970	POS	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF I	N 5
6030 / 6030	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF I	N 5
6090 / 6090	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF I	N 5
6150 / 6150	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF I	N 5
6180 / 6180	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF I	N 5
6300 / 6300	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF I	N 5
6360 / 6360	POS	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF I	N 5
6390 / 6390	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF I	N 5

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

4

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 529 Date of Summary: 22-FEB-2007 First Sample Examined: 5490 Source of Paleo: OPERATOR Lease Number: G27691 **Borehole MD:** 6488 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 6488 **Drilling Operator:** W & T OFFSHORE INC **API Well Number:** 608054003500 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 5490 - 6480 4002 Water Depth:

Public Info Code: Y 21-MAR-2010 Ecozone Eq MMS: Y

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
6450 / 6450	DEF AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF IN 5
6480 / 6480	DEF AT last sample examined	DEF IN 5

GEOLOGIC 02-FEB-2011 PAGE: 5

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 627 7000 Date of Summary: 31-MAR-2000 First Sample Examined: Lease Number: G20852 Source of Paleo: OPERATOR 10500 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10500 **Drilling Operator: HESS CORPORATION API Well Number:** 608054000600 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 7000 - 10500 5211 Water Depth: Public Info Code: Y 30-NOV-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	ozone
7000 / 7000	DEF	AT first sample examined	DEF	AT	5
7390 / 7390	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
7630 / 7630	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
7810 / 7810	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
7900 / 7900	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
7990 / 7990	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
8020 / 8020	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
8320 / 8320	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
8410 / 8410	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
8440 / 8440	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
8560 / 8560	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
9130 / 9130	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	6
9220 / 9220	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
9250 / 9250	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
9340 / 9340	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
9430 / 9430	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	6
9550 / 9550	DEF	AT	DEF	IN	5
9730 / 9730	DEF	AT	DEF	AT	5
10030 / 10030	DEF	AT	DEF	IN	5
10360 / 10360	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	IN	5
10480 / 10480	DEF	AT Lower Miocene (Aquitanian) Globigerina angulisuturalis	DEF	IN	5
10500 / 10500	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 6

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 627 7000 Date of Summary: 31-MAR-2000 First Sample Examined: Lease Number: G20852 Source of Paleo: OPERATOR 10500 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10500 **Drilling Operator: HESS CORPORATION API Well Number:** 608054000600 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7000 - 10500 5211 Water Depth: Public Info Code: Y 30-NOV-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		<u>Ecozone</u>
7000 /	7000	DEF	AT first sample examined	DEF	AT
7001 /	7001	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
7390 /	7390	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
7600 /	7600	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7810 /	7810	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7870 /	7870	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
7960 /	7960	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
7990 /	7990	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
8020 /	8020	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
8080 /	8080	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
8110 /	8110	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8260 /	8260	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
8320 /	8320	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
8350 /	8350	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
8440 /	8440	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
8500 /	8500	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
8530 /	8530	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
8800 /	8800	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
8801 /	8801	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
8802 /	8802	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
8890 /	8890	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
8980 /	8980	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

7

003

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 627 7000 Date of Summary: 31-MAR-2000 First Sample Examined: Lease Number: G20852 Source of Paleo: OPERATOR **Borehole MD:** 10500 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10500 **Drilling Operator: HESS CORPORATION API Well Number:** 608054000600 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7000 - 10500 5211 Water Depth:

Public Info Code: Y 30-NOV-2008 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9070 / 9070	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
9071 / 9071	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
9130 / 9130	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus (increase)	DEF	AT
9220 / 9220	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
9221 / 9221	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
9250 / 9250	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
9280 / 9280	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
9340 / 9340	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
9370 / 9370	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
9430 / 9430	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT
9431 / 9431	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
9910 / 9910	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
10060 / 10060	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
10330 / 10330	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
10360 / 10360	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
10480 / 10480	POS	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT
10500 / 10500	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 8

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 731 Date of Summary: 25-SEP-2007 11785 First Sample Examined: Lease Number: G19386 Source of Paleo: OPERATOR 16844 **Borehole MD:** Well Name: AC001 Paleo Done By: OPERATOR **Borehole TVD:** 15744 **Drilling Operator: EXXON MOBIL CORPORATION API Well Number:** 608054003600 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 11785 - 15150 8694 Water Depth: Public Info Code: Y 15-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: North Bront Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
11785 / 11784	DEF	AT first sample examined	DEF	IN	5
11786 / 11785	DEF	IN condensed section	DEF	IN	5
11787 / 11786	DEF	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	5
11788 / 11787	DEF	IN Upper Miocene (Tortonian) Discoaster bellus	DEF	IN	5
11850 / 11849	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	IN	5
11880 / 11879	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	IN	5
11909 / 11908	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	IN	5
11910 / 11909	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	IN	5
11937 / 11936	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	IN	5
11938 / 11937	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	IN	5
11939 / 11938	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	IN	5
11940 / 11939	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5
11969 / 11968	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	IN	5
11970 / 11969	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	IN	5
11999 / 11998	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF	IN	5
12000 / 11999	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	IN	5
12028 / 12027	DEF	AT unconformity	DEF	IN	5
12029 / 12028	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	IN	5
12030 / 12029	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	IN	5
12085 / 12084	DEF	IN Lower Oligocene (Rupelian) Discoaster nodifer	DEF	IN	5
12119 / 12118	DEF	AT Lower Oligocene (Rupelian) Lanternithus minutus	DEF	IN	5
12120 / 12119	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 9

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:AC 731Date of Summary:25-SEP-2007First Sample Examined:11785Lease Number:G19386Source of Paleo:OPERATORBorehole MD:16844Well Name:AC001Paleo Done By:OPERATORBorehole TVD:15744

API Well Number: 608054003600 Drilling Operator: EXXON MOBIL CORPORATION Rkb Elevation: 82

API Well Number: 608054003600 Drilling Operator: EXXON MOBIL CORPORATION Rkb Elevation: 82
Paleo Report Num: 1 of 1 Sample Range: 11785 - 15150 Water Depth: 8694

Public Info Code: Y 15-MAR-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
12160 / 12159	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	IN	5
12210 / 12209	DEF	AT	DEF	IN	4
12240 / 12239	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	IN	4
12270 / 12269	DEF	AT Middle Eocene (Lutetian) Sphenolithus spiniger	DEF	IN	4
12298 / 12297	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	IN	4
12299 / 12298	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	IN	4
12300 / 12299	DEF	AT Middle Eocene (Lutetian) Neococcolithes dubius	DEF	IN	4
12359 / 12357	DEF	AT Upper Oligocene	DEF	IN	4
12360 / 12358	DEF	AT local marker floral decrease	DEF	IN	4
12540 / 12538	DEF	AT Lower Eocene (Ypresian) Acarinina soldadoensis	DEF	IN	4
12570 / 12568	DEF	AT Lower Eocene (Ypresian) Globorotalia wilcoxensis	DEF	IN	4
13619 / 13516	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	IN	4
13620 / 13517	DEF	AT Upper Paleocene (Thanetian) Toweius eminens	DEF	IN	4
13800 / 13649	DEF	AT Upper Paleocene (Thanetian) Fasciculithus tympaniformis	DEF	IN	4
14460 /14105	POS	AT Upper Paleocene (Thanetian) Heliolithus kleinpellii	DEF	IN	4
15150 / 14578	DEF	AT Upper Paleocene (Thanetian) Cruciplacolithus tenuis (increase)	DEF	IN	4
15420 / 14764	DEF	AT Bathysiphon fauna	DEF	IN	4
15960 / 15136	POS	AT Lower Paleocene (Danian) Chiasmolithus danicus	DEF	ΑT	4
16020 / 15177	POS	AT Lower Paleocene (Danian) Markalius inversus astroporus	DEF	IN	4
16844 / 15745	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 10

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 818 Date of Summary: 19-JAN-2004 10350 First Sample Examined: Lease Number: G20863 Source of Paleo: OPERATOR **Borehole MD:** 15231 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 15212 **Drilling Operator: CHEVRON USA INC API Well Number:** 608054002500 **Rkb Elevation:** 92 Paleo Report Num: 1 of 3 **Sample Range:** 10350 - 15060 9004 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Tiger Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10350 / 10350	DEF	AT first sample examined	DEF	AT
10351 / 10351	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
10360 / 10360	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
10380 / 10380	DEF	AT floral flood	DEF	AT
10440 / 10440	DEF	AT reworked material	DEF	AT
10470 / 10470	DEF	AT local marker floral decrease	DEF	AT
10530 / 10530	DEF	AT floral flood	DEF	AT
10538 / 10538	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT
10560 / 10560	DEF	IN Lower Oligocene Rupelian Stage	DEF	AT
10590 / 10590	DEF	AT reworked material	DEF	AT
10609 / 10609	DEF	AT local marker floral decrease	DEF	AT
10650 / 10650	DEF	AT floral flood	DEF	AT
11100 / 11100	DEF	AT Lower Oligocene (Rupelian) Ismolithus recurvus	DEF	AT
11580 / 11579	POS	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT
11790 / 11787	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT
11850 / 11846	DEF	IN Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT
12180 / 12175	DEF	AT local marker floral decrease	DEF	AT
12210 / 12205	DEF	AT Upper Eocene (Priabonian) Sphenolithus obtusus	DEF	AT
12240 / 12234	DEF	AT Middle Eocene (Bartonian) Chiasmolithus solitus	DEF	AT
12359 / 12353	DEF	AT local marker floral decrease	DEF	AT
12360 / 12354	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	AT
12390 / 12384	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	AT

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 11

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 818 10350 Date of Summary: 19-JAN-2004 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G20863 **Borehole MD:** 15231 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 15212 Drilling Operator: CHEVRON USA INC **API Well Number:** 608054002500 **Rkb Elevation:** 92 Paleo Report Num: 1 of 3 **Sample Range:** 10350 - 15060 9004 Water Depth:

Public Info Code: Y 31-OCT-2008 Ecozone Eq MMS:

Dalas Tau Danasistias

MD / TVD		Paleo Top Description			<u>Ecozone</u>
12540 / 12533	DEF	AT local marker floral decrease	DE	F A	.Τ
12630 / 12623	DEF	AT Lower Eocene (Ypresian) Tribrachiatus orthostylus	DE	F A	.Τ
12720 / 12712	POS	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DE	F A	λT
12770 / 12762	DEF	AT local marker floral decrease	DE	F A	.Τ
12800 / 12792	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DE	F A	.Τ
12859 / 12850	DEF	AT Upper Paleocene (Thanetian) Ellipsolithus distichus	DE	F A	.Τ
12860 / 12851	DEF	AT Upper Paleocene (Thanetian) Toweius eminens	DE	F A	.Τ
12990 / 12980	DEF	AT local marker floral decrease	DE	F A	λT
13770 / 13756	POS	AT Upper Paleocene (Thanetian) Cruciplacolithus tenuis (increase)	DE	F A	λT
13830 / 13816	DEF	AT local marker floral decrease	DE	F A	λT
14130 / 14115	POS	AT local marker floral increase	DE	F A	λ <b>T</b>
14190 / 14175	DEF	AT local marker floral decrease	DE	F A	λ <b>T</b>
14580 / 14563	POS	AT local marker floral increase	DE	F A	λT
14610 / 14593	DEF	AT local marker floral decrease	DE	F A	λ <b>T</b>
14730 / 14713	POS	AT local marker floral increase	DE	F A	λ <b>T</b>
14760 / 14742	DEF	AT local marker floral decrease	DE	F A	λ <b>T</b>
15030 / 15012	POS	AT local marker floral increase	DE	F A	λT
15060 / 15042	DEF	AT last sample examined	DE	F A	ΛT

GEOLOGIC

12

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 818 Date of Summary: 01-FEB-2004 10350 First Sample Examined: Lease Number: G20863 Source of Paleo: OPERATOR **Borehole MD:** 15231 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 15212 **Drilling Operator: CHEVRON USA INC API Well Number:** 608054002500 **Rkb Elevation:** 92 Paleo Report Num: 2 of 3 **Sample Range:** 10350 - 15120 9004 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Tiger Prospect

MD / TVD		Paleo Top Description		Eco	ozone
10350 / 10350	DEF	AT first sample examined	DEF	AT	5
10351 / 10351	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
10379 / 10379	DEF	AT foram flood	DEF	IN	5
10380 / 10380	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	5
10409 / 10409	DEF	AT foram flood	DEF	IN	5
10410 / 10410	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	IN	5
10469 / 10469	DEF	AT glauconite	DEF	AT	5
10470 / 10470	DEF	AT local marker foram decrease	DEF	AT	5
10530 / 10530	DEF	AT local marker foram increase	DEF	AT	4
10560 / 10560	DEF	AT reworked material	DEF	AT	4
10620 / 10620	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
10650 / 10650	DEF	AT local marker planktic foram increase	DEF	AT	5
10680 / 10680	DEF	IN Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
10710 / 10710	DEF	AT local marker foram decrease	DEF	AT	5
10770 / 10770	POS	AT volcanics	DEF	AT	5
10800 / 10800	DEF	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	5
10889 / 10889	DEF	AT pyrite	DEF	AT	4
10890 / 10890	DEF	IN Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	4
10920 / 10920	DEF	AT Lower Oligocene (Rupelian) Globorotalia increbescens	DEF	AT	4
11130 / 11130	DEF	AT limestone	DEF	AT	4
11160 / 11160	DEF	AT local marker benthic foram increase	DEF	AT	4
11190 / 11190	POS	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	AT	4

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

13

**Ecozone** 

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 818 Date of Summary: 01-FEB-2004 First Sample Examined: 10350 Lease Number: G20863 Source of Paleo: OPERATOR **Borehole MD:** 15231 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 15212 **API Well Number:** 608054002500 **Drilling Operator: CHEVRON USA INC Rkb Elevation:** 92 Paleo Report Num: 2 of 3 **Sample Range:** 10350 - 15120 9004 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

		Paleo Top Description		ECOZ	zone
11280 / 11280	POS	AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	AT	4
11580 / 11579	DEF	AT local marker planktic foram increase	DEF	AT	4
11610 / 11609	DEF	AT local marker foram decrease	DEF	AT	4
11670 / 11668	DEF	IN reworked material	DEF	AT	4
11760 / 11757	DEF	AT transported shelf fauna	DEF	AT	4
11790 / 11787	DEF	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	AT	4
11939 / 11935	DEF	AT pyrite	DEF	AT	4
11940 / 11936	DEF	IN Upper Eocene (Priabonian) Hantkenina alabamensis	DEF	AT	4
11969 / 11965	DEF	AT radiolarians	DEF	AT	4
11970 / 11966	DEF	AT Upper Eocene (Priabonian) Globorotalia pomeroli	DEF	AT	4
11999 / 11995	DEF	AT radiolarians	DEF	AT	5
12000 / 11996	POS	IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	AT	5
12090 / 12085	DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	5
12119 / 12114	DEF	AT pyrite	DEF	AT	5
12120 / 12115	DEF	AT radiolarians	DEF	AT	5
12180 / 12175	DEF	AT local white Arenacous fauna	DEF	AT	5
12239 / 12233	DEF	IN Middle Eocene (Bartonian) Morozovella lehneri	DEF	AT	5
12240 / 12234	DEF	AT Middle Eocene (Bartonian) Truncorotaloides topilensis	DEF	AT	5
12241 / 12235	DEF	IN Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	5
12300 / 12294	DEF	AT radiolarians	DEF	AT	6
12360 / 12354	DEF	AT	DEF	IN	6
12420 / 12414	POS	AT Middle Eocene (Bartonian) Globorotalia spinuloinflata	DEF	IN	6
12510 / 12503	DEF	IN radiolarians	DEF	IN	6
12629 / 12622	DEF	IN radiolarians	DEF	IN	6

This report contains public paleo reports only for the time period stated

Paleo Top Description

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

14

Fcozone

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 818 Date of Summary: 01-FEB-2004 10350 First Sample Examined: Lease Number: G20863 Source of Paleo: OPERATOR 15231 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 15212 **Drilling Operator: CHEVRON USA INC API Well Number:** 608054002500 **Rkb Elevation:** 92 Paleo Report Num: 2 of 3 **Sample Range:** 10350 - 15120 9004 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

_	MD/IVD		Paleo Top Description			<u>Ecozone</u>
	12630 / 12623	POS	AT Lower Eocene (Ypresian) Acarinina soldadoensis	DEF	IN	6
	12690 / 12682	DEF	AT local marker foram decrease	DEF	ΑT	5
	12770 / 12762	DEF	AT Bathysiphon fauna	DEF	AT	5
	12860 / 12851	DEF	AT Lower Eocene (Ypresian) Globorotalia wilcoxensis	DEF	ΑT	4
	12890 / 12881	POS	AT Upper Paleocene (Thanetian) Morozovella velascoensis	DEF	AT	4
	13020 / 13010	DEF	AT pyrite	DEF	AT	4
	13140 / 13129	POS	AT Arenaceous fauna (local marker)	DEF	ΑT	4
	13170 / 13159	POS	AT radiolarians	DEF	ΑT	4
	13260 / 13249	DEF	AT local white Arenacous fauna	DEF	ΑT	4
	13320 / 13309	DEF	AT radiolarians	DEF	ΑT	4
	13530 / 13517	DEF	AT local white Arenacous fauna	DEF	ΑT	4
	13590 / 13577	DEF	AT local marker foram decrease	DEF	ΑT	4
	13769 / 13755	POS	IN Upper Paleocene (Thanetian) Planulorotalites pseudomenardii	DEF	ΑT	4
	13770 / 13756	DEF	AT Upper Paleocene (Thanetian) Planorotalites pusilla pusilla	DEF	ΑT	4
	13800 / 13786	DEF	IN Upper Paleocene (Thanetian) Planorotalites pusilla pusilla	DEF	ΑT	4
	13830 / 13816	DEF	AT local marker foram decrease	DEF	ΑT	4
	13890 / 13876	DEF	AT radiolarians	DEF	ΑT	4
	14070 / 14055	DEF	AT local marker foram decrease	DEF	ΑT	4
	14580 / 14563	POS	AT local marker planktic foram increase	DEF	ΑT	4
	14610 / 14593	DEF	AT local marker foram decrease	DEF	ΑT	4
	15120 / 15101	DEF	AT last sample examined	DEF	ΑT	4

Paleo Ton Description

GEOLOGIC 02-FEB-2011

15

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 818 Date of Summary: 01-OCT-2004 First Sample Examined: 12690 Lease Number: G20863 Source of Paleo: OPERATOR **Borehole MD:** 15231 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 15212 **Drilling Operator: CHEVRON USA INC API Well Number:** 608054002500 **Rkb Elevation:** 92 **Sample Range:** 12690 - 15120 Paleo Report Num: 3 of 3 9004 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Tiger Prospect, palynologic report, palynomorph (terrestrial spores and pollen, marine dinoflagellates) species abundance and diversity chart available,

see report for details

<u> </u>	Paleo Top Description	<u>Ecozone</u>
12690 / 12682	DEF AT first sample examined	DEF AT
12691 / 12683	DEF IN Lower (Early) Eocene	DEF AT
12692 / 12684	POS IN Lower Eocene (Ypresian) Intratriporopollenites 1 (pollen)	DEF AT
12930 / 12921	DEF AT Upper (Late) Paleocene	DEF AT
15120 / 15101	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 16

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 903 Date of Summary: 17-SEP-2001 First Sample Examined: 12560 Lease Number: G20876 Source of Paleo: OPERATOR 20500 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 20492 **API Well Number:** 608054001500 **Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation:** 91 Paleo Report Num: 1 of 2 Sample Range: 12560 - 20500 9743 Water Depth: Public Info Code: Y 31-OCT-2008 001 **Ecozone Eq MMS:** N Paleo ID:

Remark: Trident Prospect, paleo done by Robert Fleisher, 20180=Upper Cretaceous indicated by Inoceramus prism fragments, except for a narrow stratigraphic interval within the Lower Eccene, most of the well contains very few age-diagnostic microfossils and no well-developed faunas, planktic forams are generally scarce below the Lower Oligocene, samples are consistently very sandy below 15110 feet, below 15400 feet diagnostic foram faunas disappear, no Cretaceous planktic forams observed, but a few inoceramid fragments date the samples to probable Upper Cretaceous, within the Abathomphalus mayaroensis zone or somewhat older, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
12560 / 12560	DEF	AT first sample examined	DEF	AT	
12561 / 12561	POS	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	
12590 / 12590	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	
12800 / 12799	DEF	IN Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	
12860 / 12859	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	
12980 / 12979	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	
13430 / 13429	DEF	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	
13640 / 13639	DEF	AT Lower Oligocene (Rupelian) Pseudohastigerina micra	DEF	AT	
14150 / 14149	DEF	AT Upper Eocene (Priabonian) Globorotalia pomeroli	DEF	AT	
14360 / 14359	DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	
14457 / 14456	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	
14840 / 14839	DEF	AT Middle Eocene (Bartonian) Morozovella lehneri	DEF	AT	
14900 / 14899	DEF	AT Middle Eocene (Bartonian) Acarinina broedermanni	DEF	AT	
15020 / 15019	DEF	AT Middle Eocene (Lutetian) Morozovella aragonensis	DEF	AT	
15140 / 15139	POS	AT Lower Eocene (Ypresian) Morozovella formosa formosa	DEF	AT	
17060 / 17058	POS	AT Upper Paleocene (Thanetian) Morozovella velascoensis	DEF	AT	
18320 / 18316	DEF	AT faunal change (no faunal increase)	DEF	IN	4
18830 / 18825	POS	AT Lower Paleocene (Danian) Globorotalia trinidadensis	DEF	IN	4
18920 / 18915	DEF	IN Paleocene	DEF	IN	4

GEOLOGIC

PAGE: 17

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 903 Date of Summary: 17-SEP-2001 First Sample Examined: 12560 Source of Paleo: OPERATOR Lease Number: G20876 **Borehole MD:** 20500 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 20492 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608054001500 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 12560 - 20500 9743 Water Depth: Public Info Code: Y 31-OCT-2008 Ecozone Eq MMS: N Paleo ID: 001

MD / TVD		Paleo Top Description		<u> </u>	cozone
20000 / 19993	DEF	AT Lower Paleocene (Danian) Globorotalia trinidadensis	POS	AT	4
20029 / 20022	POS	IN Lower Paleocene Danian Stage	POS	AT	4
20030 / 20023	POS	IN Upper Cretaceous (Maastrichtian) Abathomphalus mayaroensis	POS	AT	4
20180 / 20172	DEF	AT shell fragments	DEF	AT	4
20500 / 20492	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 18

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 903 Date of Summary: 08-OCT-2001 First Sample Examined: 12560 Lease Number: G20876 Source of Paleo: OPERATOR 20500 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 20492 **API Well Number:** 608054001500 **Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation:** 91 Water Depth: 9743 Paleo Report Num: 2 of 2 **Sample Range:** 12560 - 20500 Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 002

**Remark:** Trident Prospect, company-integrated foram and nanno report, forams by Robert Fleisher, nannos by Bugware (Covington), 18890=in Upper Paleocene Subbotina trivialis, 19040=base of Late Paleocene Fasiculithus sp, 20000=rare Lower Paleocene Subbotina trivialis, 20490=in Lower Paleocene

Subbotina trivialis, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12560 / 12560	DEF	AT first sample examined	DEF	AT
12580 / 12580	DEF	IN Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
12920 / 12919	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
13040 / 13039	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT
13100 / 13099	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
13220 / 13219	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	AT
13580 / 13579	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT
14120 / 14119	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT
14121 /14120	DEF	AT Upper Eocene (Priabonian) Discoaster saipanensis	DEF	AT
14570 / 14569	DEF	AT Upper Eocene (Priabonian) Sphenolithus obtusus	DEF	AT
14660 / 14659	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT
15025 / 15024	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	AT
15035 / 15034	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	AT
15050 / 15049	DEF	AT Lower Eocene (Ypresian) Tribrachiatus orthostylus	DEF	AT
15140 / 15139	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT
16940 / 16938	POS	AT Upper Paleocene (Thanetian) Fasciculithus tympaniformis	DEF	AT
18890 / 18885	DEF	IN Upper Paleocene (Thanetian) Planulorotalites pseudomenardii	DEF	AT
19040 / 19035	DEF	AT local marker floral increase	DEF	AT
20000 / 19993	POS	AT Lower Paleocene (Danian) Globorotalia trinidadensis	DEF	AT
20490 / 20482	DEF	IN Lower Paleocene (Danian) Globorotalia trinidadensis	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 19

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: AC 903 Date of Summary: 08-OCT-2001 First Sample Examined: 12560

Lease Number:G20876Source of Paleo:OPERATORBorehole MD:20500Well Name:001Paleo Done By:OPERATORBorehole TVD:20492

API Well Number: 608054001500 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 91

 Paleo Report Num:
 2 of 2
 Sample Range:
 12560 - 20500
 Water Depth:
 9743

Public Info Code: Y 31-OCT-2008 Ecozone Eq MMS: Paleo ID: 002

MD / TVD Paleo Top Description Ecozone

20500 / 20492 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 20

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 903 12665 Date of Summary: 01-FEB-2002 First Sample Examined: Lease Number: G20876 Source of Paleo: OPERATOR 20500 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 19904 **API Well Number:** 608054001700 **Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation:** 91 **Sample Range:** 12665 - 20490 9727 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Trident Prospect, calcareous nannofossil report, 15240=Middle Eocene Rhabdosphaera gladius, 16170=Upper Paleocene base of Helicosphaera

bramlettei, 18300=Upper Paleocene Discoaster mohleri, 19320=co-occurrence of multiple Fasciculithus spp

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12665 / 12653	DEF	AT first sample examined	DEF	AT
12666 / 12654	DEF	IN Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	AT
12780 / 12767	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	AT
13640 / 13623	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT
13830 / 13813	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT
14220 / 14202	DEF	AT Lower Oligocene (Rupelian) Ismolithus recurvus	DEF	AT
14430 / 14412	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	AT
14460 / 14442	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT
14880 / 14862	DEF	AT Upper Eocene (Priabonian) Sphenolithus obtusus	DEF	AT
15210 / 15192	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT
15240 / 15222	POS	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	AT
15420 / 15402	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	AT
15450 / 15432	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	AT
15510 / 15492	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT
16170 / 16152	DEF	AT Upper (Late) Paleocene	DEF	AT
16770 / 16751	POS	AT Upper Paleocene (Thanetian) Heliolithus kleinpellii	DEF	AT
19320 / 19112	POS	IN Upper Paleocene (Thanetian) Heliolithus riedelli	DEF	AT
20490 / 19898	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 21

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 903 Date of Summary: 12-FEB-2002 First Sample Examined: 12665 Lease Number: G20876 Source of Paleo: OPERATOR 20500 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 19904 **API Well Number:** 608054001700 **Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation:** 91 Paleo Report Num: 2 of 2 Sample Range: 12665 - 20500 9727 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y 001 Paleo ID:

Remark: Trident Prospect, 14790=Upper Eocene (probably zone P16) Globigerinatheka howei and Globigerinatheka tropicalis, 14850=Upper Eocene Globigerinatheka semiinvoluta (zone P15), 14880=Upper Eocene Globigerinatheka mexicana (zone P15), 15180=Middle Eocene (zone P12)

Gumbelitrioides higginsi, 15360=Middle Eocene (zone P11) Globorotalia praecentralis, 15450=Middle Eocene (zone P10) Acarinina pseudotopilensis,

18360=Paleocene (zoneS P2 TO P5) Subbotina triangularis, 18795=Paleocene (zoneS P1 TO basal P4) Subbotina triloculinoides?

Paleo Top Description		Ecoz	zone
AT first sample examined	DEF	AT	6
IN Oligocene	DEF	AT	6
AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	6
AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	6
AT local marker foram decrease	DEF	AT	6
AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	AT	6
IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	AT	6
AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	6
AT local marker planktic foram increase	DEF	AT	6
AT Middle Eocene (Bartonian) Truncorotaloides rohri	DEF	AT	6
AT Middle Eocene (Bartonian) Acarinina broedermanni	DEF	AT	6
AT faunal change (no faunal increase)	DEF	IN	5
IN local marker planktic foram increase	DEF	IN	5
AT local marker foram decrease	DEF	IN	5
AT Lower Eocene (Ypresian) Morozovella rex / subbotinae	DEF	IN	5
AT local marker foram decrease	DEF	IN	5
AT Upper Paleocene (Thanetian) Morozovella velascoensis	DEF	IN	5
AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii	DEF	IN	5
AT Upper Paleocene (Selandian) Globorotalia inconstans	DEF	IN	5
F F F F S F F S F F F F S	AT first sample examined  F AT irst sample examined  F AT Upper Oligocene (Chattian) Globorotalia opima opima  AT Lower Oligocene (Rupelian) Globigerina ampliapertura  AT local marker foram decrease  AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis  IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana  AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta  AT local marker planktic foram increase  AT Middle Eocene (Bartonian) Truncorotaloides rohri  AT faunal change (no faunal increase)  IN local marker planktic foram increase  AT local marker foram decrease  AT Lower Eocene (Ypresian) Morozovella rex / subbotinae  AT local marker foram decrease  AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii	AT first sample examined  F AT Upper Oligocene (Chattian) Globorotalia opima opima  DEF AT Lower Oligocene (Rupelian) Globigerina ampliapertura  DEF AT local marker foram decrease  DEF AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis  DEF IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana  DEF AT local marker planktic foram increase  DEF AT local marker planktic foram increase  DEF AT Middle Eocene (Bartonian) Truncorotaloides rohri  DEF AT faunal change (no faunal increase)  IN local marker planktic foram increase  DEF AT local marker planktic foram increase  DEF AT local marker planktic foram increase  DEF AT focal marker planktic foram increase  DEF AT focal marker planktic foram increase  DEF AT local marker foram decrease  DEF AT local marker foram decrease  DEF AT Lower Eocene (Ypresian) Morozovella rex / subbotinae  DEF AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii  DEF AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii  DEF	AT first sample examined  E AT first sample examined  DEF AT  AT Upper Oligocene  AT Upper Oligocene (Chattian) Globorotalia opima opima  DEF AT  AT Lower Oligocene (Rupelian) Globigerina ampliapertura  DEF AT  AT local marker foram decrease  DEF AT  AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis  IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana  DEF AT  AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana  DEF AT  AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta  DEF AT  AT local marker planktic foram increase  DEF AT  AT Middle Eocene (Bartonian) Truncorotaloides rohri  AT Middle Eocene (Bartonian) Acarinina broedermanni  DEF AT  AT faunal change (no faunal increase)  IN local marker planktic foram increase  DEF IN  AT local marker foram decrease  DEF IN  AT Lower Eocene (Ypresian) Morozovella rex / subbotinae  AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii  DEF IN  AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii  DEF IN

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 22

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 903 Date of Summary: 12-FEB-2002 12665 First Sample Examined:

> Source of Paleo: OPERATOR Lease Number: G20876 20500 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 19904

Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608054001700 **Rkb Elevation:** 91

Paleo Report Num: 2 of 2 **Sample Range:** 12665 - 20500 9727 Water Depth: Paleo ID: 001

Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y

MD/TVD	Paleo Top Description	<u>Ecozone</u>
19560 / 19280	DEF AT faunal change (no faunal increase)	POS IN 5
20500 / 19904	DEF AT last sample examined	POS IN 5

GEOLOGIC 02-FEB-2011 PAGE: 23

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AC 947 Date of Summary: 15-JAN-2003 First Sample Examined: 13175 Lease Number: G20882 Source of Paleo: OPERATOR 19700 **Borehole MD:** Well Name: 001 19693 Paleo Done By: OPERATOR **Borehole TVD:** API Well Number: 608054002100 **Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 13175 - 15150 9672 Water Depth: Public Info Code: Y 31-OCT-2008 001 **Ecozone Eg MMS:** Paleo ID:

Remark: Trident Prospect, calcareous nannofossil report, 13530=base of Sphenolithus distentus s I, 13650=IPS nanno matrix event, 14040=base of Ismolithus recurvus, 14430=significant downhole increase in Pemma spp, 14490=base of Discoaster tani 5-ray and base of Sphenolithus predistentus

MD / TVD Paleo Top Description **Ecozone** 13175 / 13172 AT first sample examined DEF AT DEF 13176 / 13173 IN Lower Oligocene (Rupelian) Reticulofenestra hillae DEF AT AT Lower Oligocene (Rupelian) Ericsonia formosa DEF AT 13290 / 13287 13530 / 13527 DEF AT local marker floral increase DEF AT 13650 / 13647 DEF AT local marker floral increase DEF AT AT Lower Oligocene (Rupelian) Ismolithus recurvus DEF AT 13710 / 13707 13830 / 13827 DEF AT Upper Eocene (Priabonian) Cribrocentrum reticulatum DEF AT 13890 / 13887 AT Upper Eocene (Priabonian) Discoaster barbadiensis DEF AT AT Upper Eocene (Priabonian) Discoaster saipanensis 13891 / 13888 DEF DEF AT 14040 / 14036 DEF AT local marker floral increase DEF AT DEF AT 14190 / 14186 AT Middle Eocene (Bartonian) Sphenolithus radians 14280 / 14276 DEF AT Upper Eocene (Priabonian) Sphenolithus obtusus DEF AT AT local marker floral increase DEF AT 14430 / 14426 DEF DEF AT local marker floral increase DEF AT 14490 / 14486 AT local marker floral decrease 14520 / 14516 DEF DEF AT DEF AT Middle Eocene (Lutetian) Sphenolithus spiniger DEF AT 14610 / 14606 AT local marker floral decrease DEF AT 14850 / 14846 DEF DEF AT Middle Eocene (Lutetian) Discoaster Iodoensis DEF AT 14940 / 14936 DEF AT 15000 / 14996 POS AT Lower Eocene (Ypresian) Toweius crassus 15090 / 15086 AT Lower Eocene (Ypresian) Discoaster multiradiatus DEF AT DEF AT local marker floral decrease DEF AT 15149 / 15145

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 24

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: AC 947 Date of Summary: 15-JAN-2003 First Sample Examined: 13175

Lease Number:G20882Source of Paleo:OPERATORBorehole MD:19700Well Name:001Paleo Done By:OPERATORBorehole TVD:19693API Well Number:608054002100Prilling Operator:UNION OIL COMPANY OF CALLEORNIARkb Flevation:91

API Well Number: 608054002100 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 91
Paleo Report Num: 1 of 1 Sample Range: 13175 - 15150 Water Depth: 9672

Public Info Code: Y 31-OCT-2008 Ecozone Eq MMS: Paleo ID: 001

MD / TVD Paleo Top Description Ecozone

15150 / 15146 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 25

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 7 Date of Summary: 04-JUN-2003 First Sample Examined: 5530 Lease Number: G21229 Source of Paleo: OPERATOR 14636 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13965 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP **API Well Number:** 608184004000 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 5530 - 14620 3052 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
5530 / 5530	DEF	AT first sample examined	DEF	AT	5
5560 / 5560	POS	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
5710 / 5710	DEF	AT	DEF	IN	5
5800 / 5800	DEF	AT	DEF	AT	5
7810 / 7667	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
10060 / 9692	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
10210 / 9826	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
12490 / 11872	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
12730 / 12094	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
12820 / 12178	DEF	AT Upper Cretaceous (Cenomanian) Rotalipora appenninica	DEF	AT	5
13960 / 13289	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14230 / 13559	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
14500 / 13829	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
14620 / 13949	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 26

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 7 Date of Summary: 04-JUN-2003 5530 First Sample Examined: Lease Number: G21229 Source of Paleo: OPERATOR 14636 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13965 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP **API Well Number:** 608184004000 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 5530 - 14620 3052 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

_	MD/TVD		Paleo Top Description		<u>Ecozone</u>
	5530 / 5530	DEF	AT first sample examined	DEF	AT
	7840 / 7694	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
	10060 / 9692	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
	10270 / 9880	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
	10870 / 10419	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
	11950 / 11385	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
	12520 / 11899	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
	12820 / 12178	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
	13870 / 13199	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
	14170 / 13499	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
	14440 / 13769	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
	14530 / 13859	DEF	IN Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
	14620 / 13949	DEF	AT last sample examined	DEF	AT

GEOLOGIC

02-FEB-2011 PAGE: 27

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: AT 7	Date of Summary: 25-JUN-2003	First Sample Examined:	11200
Lease Number: G21229	Source of Paleo: OPERATOR	Borehole MD:	14411
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	12597
API Well Number: 608184004003	Drilling Operator: WESTPORT OIL AND GAS COMPANY LP	Rkb Elevation:	86
Paleo Report Num: 1 of 2	Sample Range: 11200 - 14410	Water Depth:	3052
Public Info Code: Y 30-JUN-2009	Ecozone Eq MMS: Y	Paleo ID:	001

Remark: Sidetrack 1 bypass 1 report, foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
11200 / 10714	DEF AT first sample examined	DEF AT 5
12730 / 11766	DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF AT 5
14230 / 12510	POS AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT 5
14290 / 12539	DEF AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF AT 5
14410 / 12597	DEF AT last sample examined	DEF AT 5

GEOLOGIC 02-FEB-2011

28

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 7 11200 Date of Summary: 25-JUN-2003 First Sample Examined: Lease Number: G21229 Source of Paleo: OPERATOR 14411 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12597 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP **API Well Number:** 608184004003 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 11200 - 14410 3052 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report for sidetrack 1 bypass 1, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>	
11200 / 10714	DEF	AT first sample examined	DE	F AT	
12040 / 11389	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DE	F AT	
12700 / 11751	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DE	F AT	
13270 / 12038	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DE	F AT	
13299 / 12053	POS	AT reworked material	DE	F AT	
13300 / 12053	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DE	F AT	
13900 / 12348	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DE	F AT	
14170 / 12481	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DE	F AT	
14200 / 12495	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DE	F AT	
14290 / 12539	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DE	F AT	
14320 / 12553	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DE	F AT	
14410 / 12597	DEF	AT last sample examined	DE	F AT	

GEOLOGIC 02-FEB-2011 PAGE: 29

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 7020 Date of Summary: 22-MAR-2000 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 18898 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 18800 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001300 **Rkb Elevation:** 82 **Sample Range:** 7020 - 18840 Paleo Report Num: 1 of 2 Water Depth: 4385 Public Info Code: Y 13-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Champlain Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7020 / 7020	DEF	AT first sample examined	DEF	AT
7080 / 7080	DEF	AT floral flood	DEF	AT
7620 / 7620	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8580 / 8579	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8880 / 8879	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9060 / 9059	DEF	AT floral flood	DEF	AT
9420 / 9419	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9540 / 9539	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "A"	DEF	AT
9780 / 9779	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9960 / 9959	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
10140 / 10139	DEF	AT floral flood	DEF	AT
10260 / 10259	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
10380 / 10379	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
10500 / 10499	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
10620 / 10619	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
10680 / 10679	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
11100 /11099	DEF	AT drilling material	DEF	AT
11400 / 11398	DEF	AT salt	DEF	AT
17800 / 17767	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
18840 / 18748	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 30

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 7020 Date of Summary: 27-MAR-2000 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 18898 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18800 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001300 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 18840 Water Depth: 4385 Public Info Code: Y 13-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Champlain Prospect, foram species abundance and diversity chart available, see report for details

MD/	<u>TVD</u>		Paleo Top Description		Eco	zone
7020 /	7020	DEF	AT first sample examined	DEF	IN	3
7050 /	7050	POS	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	IN	4
7200 /	7200	DEF	AT Illinoian fauna (local marker)	DEF	IN	4
7201 /	7201	DEF	AT local marker foram decrease	DEF	IN	4
7230 /	7230	DEF	AT local marker (general)	DEF	IN	4
7320 /	7320	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7590 /	7590	DEF	AT local marker planktic foram increase	DEF	IN	4
7680 /	7680	DEF	AT Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	IN	5
7740 /	7740	DEF	AT foram flood	DEF	IN	5
7770 /	7770	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	IN	5
7800 /	7800	DEF	AT	DEF	AT	5
7890 /	7890	DEF	AT local marker foram decrease	DEF	AT	4
7980 /	7980	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	4
8010 /	8010	DEF	AT local marker foram increase	DEF	AT	4
8040 /	8040	DEF	AT pyrite	DEF	AT	4
8160 /	8160	DEF	AT local marker foram increase	DEF	AT	4
8490 /	8489	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	4
8519 /	8518	DEF	AT foram flood	DEF	IN	4
8520 /	8519	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	4
8550 /	8549	DEF	AT faunal change (no faunal increase)	DEF	AT	4
8580 /	8579	DEF	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	AT	5
8670 /	8669	DEF	AT local marker benthic foram increase	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 31

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 27-MAR-2000 7020 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 18898 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 18800 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001300 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 18840 Water Depth: 4385

Public Info Code: Y 13-MAR-2010 Ecozone Eq MMS: Y

MD/	TVD		Paleo Top Description		<u>Eco</u>	zone
8790 /	8789	DEF	AT local marker foram decrease	DEF	AT	4
8820 /	8819	DEF	AT Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	DEF	AT	4
9029 /	9028	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	4
9030 /	9029	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	4
9057 /	9056	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
9058 /	9057	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
9059 /	9058	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
9060 /	9059	DEF	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	5
9090 /	9089	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
9119 /	9118	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	4
9120 /	9119	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	IN	4
9150 /	9149	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	4
9240 /	9239	DEF	AT sand	DEF	AT	4
9270 /	9269	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
9480 /	9479	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	4
9508 /	9507	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
9509 /	9508	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	4
9510 /	9509	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
9540 /	9539	DEF	AT local marker foram decrease	DEF	AT	4
9630 /	9629	DEF	AT foram flood	DEF	AT	4
9660 /	9659	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
9748 /	9747	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	4
9749 /	9748	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	AT	4
9750 /	9749	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	4

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 32

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 27-MAR-2000 7020 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 18898 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 18800 **API Well Number:** 608184001300 **Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 18840 Water Depth: 4385 Public Info Code: Y 13-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
9779 / 9778	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	4
9780 / 9779	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	4
9930 / 9929	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	5
10050 / 10049	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10200 / 10199	DEF	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	AT	4
10259 / 10258	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	IN	4
10260 / 10259	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	IN	4
10320 / 10319	DEF	AT pyrite	DEF	IN	4
10350 / 10349	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	4
10410 / 10409	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	4
10440 / 10439	DEF	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	IN	4
10498 / 10497	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	IN	4
10499 / 10498	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	IN	4
10500 / 10499	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	4
10649 / 10648	POS	IN out-of-place section	DEF	IN	3
10650 / 10649	POS	IN Lower Eocene (Ypresian) Morozovella rex / subbotinae	POS	IN	3
10680 / 10679	DEF	AT faunal change (no faunal increase)	DEF	IN	3
10709 / 10708	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	3
10710 / 10709	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	3
10800 / 10799	DEF	AT salt	POS	IN	3
17650 / 17622	POS	AT base of salt	DEF	AT	5
17800 / 17767	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	POS	AT	5
17850 / 17815	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	3
17880 / 17844	DEF	AT local marker foram increase	DEF	IN	3

GEOLOGIC 02-FEB-2011

33

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 27-MAR-2000 First Sample Examined: 7020 Lease Number: G13198 Source of Paleo: OPERATOR **Borehole MD:** 18898 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18800 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001300 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 18840 4385 Water Depth: Public Info Code: Y 13-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>E</u>	cozone
18000 / 17960	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi (increase)	DEF	IN	3
18120 / 18075	DEF	AT reworked material	DEF	IN	3
18150 / 18103	DEF	AT local marker benthic foram increase	DEF	AT	3
18330 / 18274	DEF	AT faunal change (no faunal increase)	DEF	IN	3
18360 / 18303	DEF	AT local white Arenacous fauna	DEF	IN	3
18450 / 18387	POS	AT salt weld	DEF	IN	3
18540 / 18471	POS	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	IN	3
18810 / 18720	DEF	AT faunal change (no faunal increase)	DEF	AT	3
18840 / 18748	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011 PAGE: 34

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 22-MAR-2000 First Sample Examined: 18870 Lease Number: G13198 Source of Paleo: OPERATOR 23540 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 22708 **API Well Number:** 608184001301 **Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation:** 82 Paleo Report Num: 1 of 4 **Sample Range:** 18870 - 23540 Water Depth: 4385 Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Champlain Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
18870 / 18780	DEF	AT first sample examined	DEF	IN	3
18871 / 18781	POS	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	IN	3
18990 / 18890	DEF	AT reworked material	DEF	IN	3
19320 / 19184	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	3
19350 / 19210	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi (increase)	DEF	IN	3
19560 / 19393	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
20100 / 19848	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	IN	3
20250 / 19975	DEF	AT local marker foram increase	DEF	IN	3
20640 / 20304	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	IN	3
20760 / 20405	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
20820 / 20455	DEF	AT pyrite	DEF	ΑT	4
20970 / 20581	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	ΑT	4
21090 / 20681	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
21450 / 20983	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	ΑT	4
21480 /21008	POS	AT local marker deep water fauna	DEF	ΑT	4
21570 / 21084	DEF	AT faunal change (no faunal increase)	DEF	IN	3
21780 / 21260	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
21870 / 21335	DEF	AT local marker foram increase	DEF	ΑT	4
21990 / 21436	DEF	AT cement	DEF	ΑT	4
22260 / 21662	POS	AT transported shelf fauna	DEF	ΑT	4
22440 /21811	DEF	AT local marker foram increase	DEF	ΑT	4
22500 / 21861	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	4

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

35

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 22-MAR-2000 First Sample Examined: 18870 Lease Number: G13198 Source of Paleo: OPERATOR 23540 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 22708 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001301 **Rkb Elevation:** 82 Paleo Report Num: 1 of 4 **Sample Range:** 18870 - 23540 Water Depth: 4385 Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

	Paleo Top Description		Ecoz	<u>one</u>
POS	AT salt weld	DEF	AT	4
POS	IN Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4	DEF	AT	4
POS	AT out-of-place section	DEF	AT	4
POS	AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF	IN	4
POS	AT Eggerella sp. (local marker)	DEF	AT	3
DEF	AT foram flood	DEF	AT	4
DEF	AT Upper Oligocene (Chattian) Robulus "A"	DEF	IN	4
DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	IN	4
DEF	AT reworked material	DEF	AT	5
DEF	AT limestone	DEF	AT	5
DEF	AT foram flood	DEF	AT	5
DEF	AT foram flood	DEF	AT	5
DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
DEF	AT limestone	DEF	AT	5
POS	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	5
DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	5
DEF	AT last sample examined	DEF	AT	5
	POS POS POS POS DEF	POS AT salt weld POS IN Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4 POS AT out-of-place section POS AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis POS AT Eggerella sp. (local marker) DEF AT foram flood DEF AT Upper Oligocene (Chattian) Robulus "A" DEF AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis DEF AT reworked material DEF AT limestone DEF AT foram flood DEF AT foram flood DEF AT oram flood DEF AT Upper Oligocene (Chattian) Globorotalia opima opima DEF AT limestone POS AT Lower Oligocene (Rupelian) Globigerina ampliapertura DEF AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	POS AT salt weld DEF POS IN Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4 DEF POS AT out-of-place section DEF POS AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis DEF POS AT Eggerella sp. (local marker) DEF DEF AT foram flood DEF DEF AT Upper Oligocene (Chattian) Robulus "A" DEF DEF AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis DEF DEF AT reworked material DEF DEF AT limestone DEF DEF AT foram flood DEF DEF AT foram flood DEF DEF AT foram flood DEF DEF AT imestone DEF DEF AT Upper Oligocene (Chattian) Globorotalia opima opima DEF DEF AT Upper Oligocene (Rupelian) Globigerina ampliapertura DEF DEF AT Lower Oligocene (Priabonian) Globigerinatheka semiinvoluta DEF	POSAT salt weldDEFATPOSIN Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4DEFATPOSAT out-of-place sectionDEFATPOSAT Lower Miocene (Aquitanian) Lenticulina jeffersonensisDEFINPOSAT Eggerella sp. (local marker)DEFATDEFAT foram floodDEFATDEFAT Upper Oligocene (Chattian) Robulus "A"DEFINDEFAT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensisDEFINDEFAT reworked materialDEFATDEFAT foram floodDEFATDEFAT foram floodDEFATDEFAT oram floodDEFATDEFAT upper Oligocene (Chattian) Globorotalia opima opimaDEFATDEFAT limestoneDEFATPOSAT Lower Oligocene (Rupelian) Globigerina ampliaperturaDEFATDEFAT Upper Eocene (Priabonian) Globigerinatheka semiinvolutaDEFAT

GEOLOGIC 02-FEB-2011 PAGE: 36

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 18870 Date of Summary: 22-MAR-2000 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 23540 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 22708 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001301 **Rkb Elevation:** 82 **Sample Range:** 18870 - 23540 Paleo Report Num: 2 of 4 Water Depth: 4385 Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Champlain Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description		<b>Ecozone</b>
18870 / 18780	DEF	AT first sample examined	DEF	AT
18900 / 18808	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
19560 / 19393	DEF	AT Upper Miocene (Tortonian) Discoaster deflandrei	DEF	AT
19740 / 19545	DEF	AT local marker floral decrease	DEF	AT
20640 / 20304	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
20760 / 20405	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
21000 / 20606	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
21420 / 20958	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21600 / 21109	DEF	AT local marker floral decrease	DEF	AT
21960 / 21410	DEF	AT reworked material	DEF	AT
22078 / 21509	DEF	AT floral flood	DEF	AT
22079 / 21510	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
22080 / 21511	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
22260 / 21662	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
22440 / 21811	DEF	AT Middle Miocene (Langhian) Discoaster calculosus	DEF	AT
22620 / 21960	DEF	AT reworked material	DEF	AT
22740 / 22059	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
22800 / 22108	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
23100 / 22353	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
23279 / 22498	DEF	AT floral flood	DEF	AT
23280 / 22499	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
23520 / 22692	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 37

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 22-MAR-2000

Lease Number: G13198 Source of Paleo: OPERATOR

Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.

**API Well Number:** 608184001301 **Drilling Operator: TEXACO EXPLORATION AND PROD** 

**Sample Range:** 18870 - 23540 Paleo Report Num: 2 of 4

Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:**  **Borehole TVD:** 22708 **Rkb Elevation:** 82 4385 Water Depth:

**Borehole MD:** 

First Sample Examined:

Paleo ID:

DEF AT

002

18870

23540

MD/TVD

**Paleo Top Description** 

**Ecozone** 

DEF AT last sample examined 23540 / 22708

GEOLOGIC 02-FEB-2011

38

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 17670 Date of Summary: 06-MAY-2000 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR **Borehole MD:** 23540 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 22708 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001301 **Rkb Elevation:** 82 Paleo Report Num: 3 of 4 **Sample Range:** 17670 - 20849 Water Depth: 4385 Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Champlain Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
17670 / 17641	DEF	AT first sample examined	DEF	AT
17671 / 17642	DEF	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
18030 / 17989	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
18210 / 18161	DEF	AT local marker floral increase	DEF	AT
18690 / 18614	DEF	AT local marker floral increase	DEF	AT
19230 / 19104	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
19590 / 19418	DEF	AT local marker floral increase	DEF	AT
19770 / 19571	DEF	AT local marker floral decrease	DEF	AT
20849 / 20479	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

39

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 17670 Date of Summary: 06-JUN-2000 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 23540 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 22708 **API Well Number:** 608184001301 **Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation:** 82 Paleo Report Num: 4 of 4 **Sample Range:** 17670 - 20849 Water Depth: 4385 Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 005

Remark: Champlain Prospect, 17670=rafted Upper Cretaceous with minor Eocene, 17730=rafted Upper Cretaceous with minor Miocene, 17820=normal section,

20760=oil-stained sand influx

MD / TVD		Paleo Top Description		<u>E</u>	cozone
17670 / 17641	DEF	AT first sample examined	DEF	IN	4
17671 / 17642	DEF	AT out-of-place section	DEF	IN	4
17730 / 17699	DEF	AT out-of-place section	DEF	ΑT	4
17820 / 17786	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	IN	4
17880 / 17844	DEF	AT local marker foram decrease	DEF	ΑT	4
17940 / 17902	DEF	AT pyrite	DEF	ΑT	4
17970 / 17931	DEF	AT local marker foram decrease	DEF	ΑT	4
18030 / 17989	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	4
18090 / 18046	DEF	AT pyrite	DEF	IN	4
18150 / 18103	DEF	AT local marker foram decrease	DEF	ΑT	4
18300 / 18247	DEF	AT local marker foram increase	DEF	IN	4
18390 / 18332	DEF	AT local marker foram decrease	DEF	AT	4
18510 / 18446	DEF	AT faunal change (no faunal increase)	DEF	IN	3
18540 / 18474	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	3
18570 / 18502	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi (increase)	DEF	IN	3
18600 / 18530	DEF	AT local white Arenacous fauna	DEF	IN	3
18630 / 18558	DEF	AT Cyclammina cancellata (local marker)	DEF	IN	3
18660 / 18586	DEF	AT pyrite	DEF	IN	3
18690 / 18614	DEF	AT sand	DEF	ΑT	4
18720 / 18642	DEF	AT local marker foram decrease	DEF	IN	3
18750 / 18670	DEF	AT	DEF	AT	4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 40

Fcozone

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 06-JUN-2000 17670 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR **Borehole MD:** 23540 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 22708 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001301 **Rkb Elevation:** 82 Paleo Report Num: 4 of 4 **Sample Range:** 17670 - 20849 4385 Water Depth: Public Info Code: Y 17-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 005

MID / I VD		Paleo Top Description		ECO	zone
19110 / 18998	DEF	AT local marker foram decrease	DEF	IN	3
19230 / 19104	DEF	AT local marker foram increase	DEF	IN	4
19290 / 19158	DEF	AT	DEF	AT	4
19350 / 19210	DEF	AT local marker foram decrease	DEF	IN	3
19560 / 19393	DEF	AT	DEF	AT	4
19620 / 19444	DEF	AT	DEF	IN	4
19650 / 19469	DEF	AT sand	DEF	AT	4
19680 / 19495	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
19710 / 19520	DEF	AT local marker foram decrease	DEF	AT	4
19740 / 19545	DEF	AT	DEF	IN	3
19920 / 19697	DEF	AT local marker foram increase	DEF	AT	4
19950 / 19722	DEF	AT local marker foram decrease	DEF	IN	3
20130 / 19874	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
20160 / 19899	DEF	AT local marker foram increase	DEF	IN	3
20220 / 19950	DEF	AT	DEF	AT	4
20250 / 19975	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	4
20280 / 20001	DEF	AT local marker foram decrease	DEF	IN	3
20620 / 20287	DEF	AT drilling material	DEF	IN	3
20640 / 20304	DEF	AT local marker foram increase	DEF	AT	4
20670 / 20329	DEF	AT local marker foram decrease	DEF	IN	3
20730 / 20380	POS	AT shell fragments	DEF	IN	3
20849 / 20479	DEF	AT last sample examined	DEF	IN	3

This report contains public paleo reports only for the time period stated

Paleo Ton Description

GEOLOGIC 02-FEB-2011

41

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 20850 Date of Summary: 06-MAY-2000 First Sample Examined: Lease Number: G13198 Source of Paleo: OPERATOR 24989 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 24637 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001302 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 20850 - 24988 Water Depth: 4385 Public Info Code: Y 03-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Champlain Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
20850 / 20834	DEF	AT first sample examined	DEF	AT
21210 / 21194	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus (increase)	DEF	AT
21270 / 21254	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
21390 / 21374	DEF	AT floral flood	DEF	AT
21450 / 21434	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
21600 / 21583	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21720 / 21702	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
22620 / 22558	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
23760 / 23558	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
24480 / 24190	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
24600 / 24296	DEF	AT reworked material	DEF	AT
24988 / 24636	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

42

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 06-JUN-2000 First Sample Examined: 20850 Lease Number: G13198 Source of Paleo: OPERATOR **Borehole MD:** 24989 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 24637 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001302 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 20850 - 24988 4385 Water Depth: Public Info Code: Y 03-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Champlain Prospect

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
20850 / 20834	DEF	AT first sample examined	DEF	IN	3
21060 / 21044	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21090 / 21074	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
21120 / 21104	DEF	AT sand	DEF	IN	3
21210 / 21194	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	IN	3
21600 / 21583	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
21630 / 21612	DEF	AT faunal change (no faunal increase)	DEF	IN	4
21690 / 21672	DEF	AT local marker foram increase	DEF	IN	4
21710 / 21692	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	4
21750 / 21731	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	ΑT	4
21840 / 21820	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	4
22110 / 22083	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	4
22140 / 22111	DEF	AT local marker foram decrease	DEF	IN	4
22200 / 22169	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	IN	4
22260 / 22226	DEF	AT	DEF	ΑT	4
22290 / 22254	DEF	AT local marker foram decrease	DEF	ΑT	4
22350 / 22310	DEF	AT	DEF	IN	3
22560 / 22504	DEF	AT	DEF	ΑT	4
22650 / 22585	DEF	AT	DEF	IN	3
22770 / 22691	DEF	AT local marker foram decrease	DEF	IN	3
23160 / 23033	DEF	AT Middle Miocene (Serravallian) Cibicides barnetti	DEF	AT	4
23220 / 23086	DEF	AT	DEF	IN	3

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

43

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 63 Date of Summary: 06-JUN-2000 First Sample Examined: 20850 Lease Number: G13198 Source of Paleo: OPERATOR 24989 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 24637 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608184001302 **Rkb Elevation:** 82 **Sample Range:** 20850 - 24988 Paleo Report Num: 2 of 2 4385 Water Depth: Public Info Code: Y 03-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
23250 / 23112	DEF	AT local marker foram decrease	DEF	IN	3
23940 / 23716	POS	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	IN	3
24390 / 24111	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	IN	3
24448 / 24162	DEF	AT Middle Miocene (Langhian) Globorotalia siakensis (coiling change left/right)	DEF	AT	6
24449 / 24163	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
24450 / 24164	DEF	AT Middle Miocene (Langhian) Cibicides 38	DEF	AT	6
24510 / 24217	DEF	AT	DEF	IN	4
24570 / 24269	DEF	AT local marker foram decrease	DEF	AT	4
24630 / 24322	DEF	AT	DEF	IN	3
24690 / 24374	DEF	AT local marker foram decrease	DEF	IN	3
24720 / 24401	DEF	AT	DEF	AT	4
24750 / 24427	DEF	AT	DEF	IN	3
24930 / 24585	DEF	AT local marker planktic foram increase	DEF	AT	4
24988 / 24636	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

44

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 92 Date of Summary: 19-APR-2001 5578 First Sample Examined: Lease Number: G21829 Source of Paleo: OPERATOR **Borehole MD:** 13505 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13173 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC API Well Number:** 608184001900 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 5578 - 13500 3414 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
5578 / 5577	DEF	AT first sample examined	DEF	AT	5
5579 / 5578	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
9540 / 9538	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
11220 / 11195	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
12510 / 12313	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
13500 / 13169	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

45

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 92 Date of Summary: 19-APR-2001 First Sample Examined: 5578 Lease Number: G21829 Source of Paleo: OPERATOR **Borehole MD:** 13505 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13173 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC API Well Number:** 608184001900 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 5578 - 13500 3414 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5578 / 5577	DEF	AT first sample examined	DEF	AT
9210 / 9208	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
11310 / 11279	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
12270 / 12113	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
12510 / 12313	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
13380 / 13065	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
13500 / 13169	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 46

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 92 Date of Summary: 19-APR-2001 11880 First Sample Examined: Lease Number: G21829 Source of Paleo: OPERATOR 15975 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15326 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC API Well Number:** 608184001901 **Rkb Elevation:** 74 Paleo Report Num: 1 of 4 **Sample Range:** 11880 - 15975 3414 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecoz	zone
11880 / 11782	DEF	AT first sample examined	DEF	AT	5
12570 / 12374	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
14040 / 13640	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
14070 / 13666	DEF	AT	DEF	IN	5
14130 / 13718	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
14220 / 13797	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
14580 / 14113	DEF	AT	DEF	AT	5
15510 / 14921	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
15975 / 15326	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

47

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 92 11880 Date of Summary: 19-APR-2001 First Sample Examined: Lease Number: G21829 Source of Paleo: OPERATOR 15975 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15326 **API Well Number:** 608184001901 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC Rkb Elevation:** 74 Paleo Report Num: 2 of 4 **Sample Range:** 11880 - 15975 3414 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		<b>Ecozone</b>
11880 / 11782 DE	AT first sample examined	DEF	AT
12330 / 12166 DE	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
12540 / 12348 DE	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
13290 / 13002 DE	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
13740 / 13385 DE	AT reworked material	DEF	AT
13890 / 13512 DE	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
14010 / 13615 DE	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
14040 / 13640 DE	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
14250 / 13823 DE	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
14730 / 14244 DE	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
15000 / 14479 DE	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
15810 / 15181 DE	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
15975 / 15326 DE	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

48

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 92 Date of Summary: 19-APR-2001 14377 First Sample Examined: Lease Number: G21829 Source of Paleo: OPERATOR **Borehole MD:** 15975 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15326 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 608184001901 **Rkb Elevation:** 74 Paleo Report Num: 3 of 4 **Sample Range:** 14377 - 15855 3414 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report based on sidewall cores

_	MD / TVD		Paleo Top Description		<b>Ecozone</b>
	14377 / 13935	DEF	AT first sample examined	DEF	AT
	14596 / 14127	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
	14838 / 14338	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
	15072 / 14542	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
	15755 / 15133	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
	15855 / 15221	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
	15856 / 15221	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

49

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 92 Date of Summary: 19-APR-2001 14377 First Sample Examined: Lease Number: G21829 Source of Paleo: OPERATOR **Borehole MD:** 15975 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15326 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 608184001901 **Rkb Elevation:** 74 Paleo Report Num: 4 of 4 **Sample Range:** 14377 - 18555 3414 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 004

Remark: Foraminiferal report based on sidewall cores

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
14377 / 13935	DEF	AT first sample examined	DEF	AT	3
14596 / 14127	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	3
14838 / 14338	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
15072 / 14542	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	3
15687 / 15074	DEF	AT	DEF	AT	2
15755 / 15133	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	3
15855 / 15221	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011 PAGE: 50

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 574 8050 Date of Summary: 06-AUG-1998 First Sample Examined: Lease Number: G08035 Source of Paleo: OPERATOR **Borehole MD:** 16708 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 16708 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608184000800 **Rkb Elevation:** 56 Paleo Report Num: 1 of 1 **Sample Range:** 8050 - 16660 6133 Water Depth: Public Info Code: Y 19-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Neptune Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
8050 / 8050	DEF	AT first sample examined	POS	AT	5
8079 / 8079	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	5
8080 / 8080	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
8170 / 8170	DEF	AT	POS	AT	5
10960 / 10960	DEF	AT	DEF	AT	5
11050 / 11050	DEF	AT	POS	AT	5
12670 / 12669	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	POS	AT	5
13689 / 13688	POS	IN Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT	5
13690 / 13689	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
13930 / 13929	DEF	AT cement	DEF	AT	5
13990 / 13989	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	POS	AT	5
14020 / 14019	DEF	AT	POS	AT	5
14050 / 14049	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	AT	5
14080 / 14079	POS	IN Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	POS	AT	5
14304 / 14303	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
14305 / 14304	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	POS	AT	5
14350 / 14349	POS	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	5
14650 / 14649	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	5
14755 / 14754	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	AT	5
15040 / 15039	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	POS	AT	5
15280 / 15279	POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	AT	5
15820 / 15819	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	POS	ΑT	5

GEOLOGIC

51

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 574 Date of Summary: 06-AUG-1998 First Sample Examined: 8050 Source of Paleo: OPERATOR Lease Number: G08035 **Borehole MD:** 16708 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 16708 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608184000800 **Rkb Elevation:** 56 Paleo Report Num: 1 of 1 **Sample Range:** 8050 - 16660 6133 Water Depth: Public Info Code: Y 19-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD	Paleo Top Description	Ecozone	<u> </u>
16240 / 16239	DEF AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	POS AT 5	
16270 / 16269	POS AT Lower Miocene (Burdigalian) Globigerina binaensis	POS AT 5	
16480 / 16479	DEF AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	POS AT 5	
16600 / 16599	DEF AT Arenaceous fauna (local marker)	POS AT 5	
16660 / 16659	DEF AT last sample examined	POS AT 5	

GEOLOGIC 02-FEB-2011 PAGE: 52

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 574 15660 Date of Summary: 06-AUG-1998 First Sample Examined: Lease Number: G08035 Source of Paleo: OPERATOR **Borehole MD:** 19032 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 19014 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608184000801 **Rkb Elevation:** 56 **Sample Range:** 15660 - 19022 Paleo Report Num: 1 of 1 6133 Water Depth: Public Info Code: Y 27-AUG-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Neptune Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Eco	zone
15660 / 15659	DEF	AT first sample examined	POS	AT	5
15661 / 15660	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	AT	5
15990 / 15989	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	POS	AT	5
16470 / 16466	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	POS	AT	5
16660 / 16655	DEF	AT	POS	AT	5
16720 / 16714	DEF	AT Arenaceous fauna (local marker)	POS	AT	5
16900 / 16893	DEF	AT	DEF	IN	5
17230 / 17221	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	IN	5
17260 / 17251	DEF	AT Upper Oligocene (Chattian) Globorotalia opima nana	DEF	IN	5
17320 / 17311	DEF	IN Upper Oligocene (Chattian) Globorotalia opima opima	DEF	IN	5
17349 / 17340	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	IN	5
17350 / 17341	DEF	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	IN	5
17380 / 17370	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	IN	5
17410 / 17400	DEF	AT Lower Oligocene (Rupelian) Globorotalia increbescens	DEF	IN	5
17470 / 17460	POS	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	IN	5
17500 / 17490	DEF	AT radiolarians	DEF	IN	5
17529 / 17519	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	IN	5
17530 / 17520	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra hillae	DEF	IN	5
17620 / 17609	DEF	IN Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT	6
17650 / 17639	DEF	IN Lower Oligocene (Rupelian) Ismolithus recurvus	DEF	AT	6
17678 / 17667	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT	6
17679 / 17668	DEF	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	AT	6

**GEOLOGIC** 02-FEB-2011

53

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: AT 574 Date of Summary: 06-AUG-1998 First Sample Examined: 15660 Source of Paleo: OPERATOR Lease Number: G08035 **Borehole MD:** 19032 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 19014 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608184000801 **Rkb Elevation:** 56

> Paleo Report Num: 1 of 1 **Sample Range:** 15660 - 19022 6133 Water Depth: Paleo ID: 001

Public Info Code: Y 27-AUG-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
17680 / 17669	DEF	AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	AT	5
17709 / 17697	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT	5
17710 / 17698	DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	6
17770 / 17758	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	6
17798 / 17786	DEF	AT foram flood	DEF	AT	6
17799 / 17787	DEF	AT Middle Eocene (Bartonian) Sphenolithus furcatolithoides	DEF	AT	6
17800 / 17788	DEF	AT Middle Eocene (Bartonian) Truncorotaloides topilensis	DEF	AT	6
17830 / 17817	DEF	AT Middle Eocene (Bartonian) Sphenolithus radians	DEF	AT	6
17950 / 17936	DEF	AT Lower Eocene (Ypresian) Tribrachiatus contortus	DEF	AT	6
18010 / 17996	DEF	AT Upper Paleocene (Thanetian) Fasciculithus tympaniformis	DEF	AT	6
18280 / 18264	DEF	AT local marker foram decrease	DEF	IN	6
18640 / 18623	DEF	AT Upper Paleocene (Thanetian) Heliolithus kleinpellii	DEF	IN	6
18820 / 18802	DEF	AT	POS	IN	5
19022 / 19004	DEF	AT last sample examined	POS	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 54

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA 366 Date of Summary: 30-NOV-2005 First Sample Examined: 6480 Lease Number: G25512 Source of Paleo: OPERATOR **Borehole MD:** 16889 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16885 **Drilling Operator: GRYPHON EXPLORATION COMPANY API Well Number:** 427044035300 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 6480 - 16860 Water Depth: 56 Ecozone Eq MMS: Y Public Info Code: Y 30-NOV-2008 Paleo ID: 001

Remark: Consultant-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
6480 / 6480	DEF	AT first sample examined	DEF	IN	3
6660 / 6660	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	IN	3
7620 / 7620	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	IN	3
9030 / 9030	DEF	AT Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4	DEF	IN	3
9630 / 9630	POS	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	IN	3
10950 / 10949	POS	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	IN	3
11310 / 11309	DEF	IN Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	IN	3
11330 / 11329	DEF	AT	DEF	AT	4
11430 / 11429	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (variety?)	DEF	AT	4
11670 / 11669	DEF	AT	DEF	AT	5
11910 / 11909	DEF	AT	DEF	AT	4
12480 / 12479	POS	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	4
15210 / 15209	POS	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT	4
16860 / 16856	DEF	AT last sample examined	DEF	AT	4

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 55

0

8593

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA 375 Date of Summary: 22-OCT-2001 First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G07215 **Borehole MD:** 9590

Well Name: A003 Paleo Done By: OPERATOR **Borehole TVD:** 

Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 427044031900 **Rkb Elevation:** 108

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 62

Public Info Code: Y 22-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u> </u>	Paleo Top Description	<u>Ecozone</u>
7154 / 6718	DEF IN Middle Miocene (Langhian) Robulus "L" / 43	DEF AT
8142 / 7518	DEF AT Lower Miocene (Burdigalian) Robulus 54B	DEF AT

GEOLOGIC 02-FEB-2011

56

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA 375 Date of Summary: 12-AUG-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G09010 **Borehole MD:** 12470 Paleo Done By: OPERATOR Well Name: A002 **Borehole TVD:** 8187 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 427044031800 **Rkb Elevation:** 108 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 62 Public Info Code: Y 31-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8970 / 5720	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT
10111 / 6348	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
10616 / 6678	DEF	IN Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
11375 / 7284	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 57

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA 376 Date of Summary: 06-JUN-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G07215 **Borehole MD:** 9619 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 7900 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 427044032500 **Rkb Elevation:** 116 Water Depth: 56

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 24-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7507 / 6881	DEF IN Middle Miocene (Langhian) Robulus "L" / 43	DEF AT
8767 / 7506	DEF IN Lower Miocene (Burdigalian) Robulus 54B	DEF AT

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 58

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Date of Summary: 11-OCT-2001 Area Block: BA 417 First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G22190 **Borehole MD:** 8124 **Borehole TVD:** 7912

Well Name: A001 Paleo Done By: OPERATOR

Drilling Operator: HELIS OIL & GAS COMPANY LLC **API Well Number:** 427044033301 **Rkb Elevation:** 100 Water Depth: 91

0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Public Info Code: Y 28-MAY-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Middle Miocene (Serravallian) Cibicides opima DEF AT 7827 / 7615

GEOLOGIC

02-FEB-2011 PAGE: 59

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 01-DEC-2001 First Sample Examined: 13200 Lease Number: G03936 Source of Paleo: OPERATOR **Borehole MD:** 20173 20146 Well Name: 001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD: Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 1 of 2 **Sample Range:** 13200 - 20173 133 Water Depth: Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	Ecozone
13200 / 13200	DEF AT first sample examined	DEF AT
13920 / 13920	POS AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF AT
15060 / 15059	POS AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF AT
15090 / 15089	POS AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF AT
20173 / 20146	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

60

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 12-DEC-2001 First Sample Examined: 270 Lease Number: G03936 Source of Paleo: OPERATOR **Borehole MD:** 20173 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20146 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 2 of 2 Sample Range: 270 - 20173 Water Depth: 133 Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

	Paleo Top Description			Eco	zone
DEF	AT first sample examined	D	EF	AT	1
DEF	AT	D	EF	IN	1
DEF	AT local marker foram increase	D	EF	IN	1
DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	D	EF	IN	1
DEF	AT	Р	ЭS	AT	1
DEF	AT local marker foram increase	D	EF	AT	2
DEF	AT	Р	ЭS	AT	2
DEF	AT	D	EF	IN	1
DEF	AT	D	EF	AT	2
DEF	AT	D	EF	IN	1
POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	D	EF	AT	2
POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	D	EF	AT	2
DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	D	EF	AT	2
DEF	AT Upper Pliocene (Piacenzian) Saracenaria "H"	D	EF	AT	2
DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	D	EF	AT	2
DEF	AT local marker foram increase	D	EF	AT	2
DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	D	EF	AT	2
DEF	AT	D	EF	IN	2
DEF	AT	Р	ЭS	AT	2
DEF	AT	D	EF	IN	2
DEF	AT sample gap top	P	ЭS	AT	2
DEF	AT sample gap bottom	D	EF	IN	2
	DEF	DEF AT first sample examined  DEF AT  DEF AT local marker foram increase  DEF AT Middle Pleistocene (Ionian) Trimosina "A"  DEF AT  DEF AT local marker foram increase  DEF AT  DEF AT IUpper Pliocene (Gelasian) Globorotalia miocenica  DEF AT Upper Pliocene (Piacenzian) Saracenaria "H"  DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira  DEF AT local marker foram increase  DEF AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata  DEF AT  DEF AT  DEF AT  DEF AT  DEF AT sample gap top	DEF AT Ifirst sample examined  DEF AT DEF AT local marker foram increase  DEF AT Middle Pleistocene (Ionian) Trimosina "A"  DEF AT Middle Pleistocene (Ionian) Trimosina "A"  DEF AT DEF AT local marker foram increase  DEF AT Upper Pliocene (Calabrian) Angulogerina "B"  POS AT Lower Pleistocene (Calabrian) Angulogerina "B"  POS AT Upper Pliocene (Gelasian) Globorotalia miocenica DEF AT Upper Pliocene (Gelasian) Saracenaria "H" DEF AT Upper Pliocene (Piacenzian) Saracenaria "H" DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata DEF AT sample gap top	DEF AT first sample examined  DEF DEF AT  DEF DEF AT  DEF DEF AT local marker foram increase  DEF DEF AT Middle Pleistocene (Ionian) Trimosina "A"  DEF DEF AT  DEF AT local marker foram increase  DEF AT  DEF AT  DEF DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica  DEF DEF AT Upper Pliocene (Piacenzian) Saracenaria "H"  DEF DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira  DEF DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira  DEF DEF AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata  DEF DEF AT  DEF DEF AT	DEF AT first sample examined DEF AT DEF AT DEF AT DEF AT local marker foram increase DEF IN DEF AT Middle Pleistocene (Ionian) Trimosina "A" DEF IN DEF AT local marker foram increase DEF IN DEF AT local marker foram increase DEF AT DEF AT Iocal marker foram increase DEF AT DEF A

GEOLOGIC 02-FEB-2011

61

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 12-DEC-2001 First Sample Examined: 270 Lease Number: G03936 Source of Paleo: OPERATOR 20173 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 20146 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 2 of 2 Sample Range: 270 - 20173 Water Depth: 133 Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / T\	<u>VD</u>	Paleo Top Description		Eco	<u>ozone</u>
3240 / 3	3240 DE	F AT	POS	IN	2
3270 / 3	3270 DE	F AT	DEF	IN	2
3300 / 3	3300 DE	F AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	2
3390 / 3	3390 DE	F AT sample gap top	POS	IN	2
3490 / 3	3490 DE	F AT sample gap bottom	DEF	IN	2
3570 / 3	3570 DE	F AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	IN	2
3630 / 3	3630 DE	F AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	2
3690 / 3	8690 PC	S AT Lower Pliocene (Zanclian) Buliminella 1	DEF	IN	2
3720 / 3	3720 DE	F AT	POS	IN	2
3750 / 3	3750 DE	F AT	DEF	AT	3
3780 / 3	3780 DE	F AT	DEF	IN	2
3810 / 3	3810 DE	F AT poor sample interval top	DEF	IN	2
3840 / 3	3840 DE	F AT poor sample interval bottom	DEF	IN	2
3900 / 3	3900 PC	S AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	2
4350 / 4	1350 PC	S AT Upper Miocene (Tortonian) Textularia 6	DEF	IN	2
4483 / 4	1483 DE	F AT cement	DEF	IN	2
4620 / 4	1620 DE	F AT	DEF	AT	2
4800 / 4	1800 PC	S AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	2
4920 / 4	1920 DE	F AT local marker foram increase	DEF	AT	2
5100 / 5	5100 DE	F AT local marker foram increase	DEF	AT	2
5850 / 5	5850 DE	F AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	2
6030 / 6	5030 DE	F AT	DEF	IN	1
6780 / 6	3780 DE	F AT	DEF	AT	2
6840 / 6	S840 DE	F AT local marker foram increase	DEF	AT	2

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

62

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 12-DEC-2001 First Sample Examined: 270 Lease Number: G03936 Source of Paleo: OPERATOR 20173 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20146 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 2 of 2 Sample Range: 270 - 20173 Water Depth: 133 Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD/TVD		Paleo Top Description		į	<u>Ecozone</u>
7140 / 7140	DEF	AT local marker foram increase	DEF	AT	2
7170 / 7170	DEF	AT	DEF	IN	2
7380 / 7380	DEF	AT	DEF	AT	2
7530 / 7530	DEF	AT	POS	AT	2
7560 / 7560	DEF	AT	DEF	AT	2
7710 / 7710	DEF	AT local marker foram increase	DEF	ΑT	2
7980 / 7980	DEF	AT local marker foram increase	DEF	AT	2
8010 / 8010	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	2
8370 / 8370	DEF	AT	POS	ΑT	2
8400 / 8400	DEF	AT	DEF	ΑT	2
8520 / 8520	DEF	AT local marker foram increase	DEF	AT	2
8550 / 8550	DEF	AT	POS	AT	2
8580 / 8580	DEF	AT	DEF	AT	2
8700 / 8700	DEF	AT	POS	AT	2
8730 / 8730	DEF	AT	DEF	AT	2
9210 / 9210	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	2
9390 / 9390	DEF	AT	DEF	ΑT	2
9450 / 9450	DEF	AT faunal change (no faunal increase)	DEF	ΑT	3
9480 / 9480	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	3
9540 / 9540	DEF	AT local marker benthic foram increase	DEF	ΑT	3
9600 / 9600	DEF	AT	DEF	IN	2
9750 / 9750	DEF	AT local marker foram increase	DEF	IN	2
9900 / 9900	POS	AT Middle Miocene (Serravallian) Textularia "W"	DEF	IN	2
10140 / 10140	DEF	AT local marker foram increase	DEF	IN	2

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

63

Fcozone

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 12-DEC-2001 First Sample Examined: 270 Lease Number: G03936 Source of Paleo: OPERATOR 20173 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20146 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 2 of 2 Sample Range: 270 - 20173 Water Depth: 133 Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MID / TVD		Paleo Top Description		<u>E0</u>	cozone
10680 / 10680	DEF	AT faunal change (no faunal increase)	DEF	IN	2
10740 / 10740	DEF	AT faunal change (no faunal increase)	DEF	AT	3
11040 / 11040	DEF	AT	DEF	IN	2
11160 / 11160	DEF	AT	DEF	AT	3
11250 / 11250	DEF	AT	DEF	AT	2
11310 / 11310	DEF	AT	DEF	IN	2
11520 / 11520	DEF	AT	DEF	AT	2
11700 / 11700	DEF	AT local marker foram increase	DEF	IN	2
12510 / 12510	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	2
12690 / 12690	DEF	AT	DEF	AT	3
12810 / 12810	DEF	AT	DEF	IN	2
13260 / 13260	DEF	AT	DEF	AT	2
13320 / 13320	DEF	AT faunal change (no faunal increase)	DEF	AT	2
13410 / 13410	DEF	AT faunal change (no faunal increase)	DEF	AT	2
13470 / 13470	DEF	AT local marker foram increase	DEF	AT	2
13560 / 13560	DEF	AT	DEF	IN	2
13800 / 13800	DEF	AT faunal change (no faunal increase)	DEF	IN	2
13830 / 13830	DEF	AT local marker foram increase	DEF	IN	3
14040 / 14040	POS	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	IN	3
14370 / 14369	DEF	AT	DEF	AT	3
14700 / 14699	DEF	AT	DEF	IN	2
14850 / 14849	DEF	AT local marker foram increase	DEF	AT	3
14910 / 14909	DEF	AT	DEF	IN	2
14970 / 14969	DEF	AT faunal change (no faunal increase)	DEF	IN	2

This report contains public paleo reports only for the time period stated

Paleo Ton Description

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 64

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 12-DEC-2001 First Sample Examined: 270 Lease Number: G03936 Source of Paleo: OPERATOR 20173 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20146 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 2 of 2 Sample Range: 270 - 20173 Water Depth: 133 Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		<u>E</u>	cozone
15000 / 14999	DEF	AT	DEF	AT	3
15120 / 15119	DEF	AT faunal change (no faunal increase)	DEF	AT	3
15210 / 15209	DEF	AT faunal change (no faunal increase)	DEF	AT	3
15360 / 15359	DEF	AT	DEF	IN	2
15720 / 15719	POS	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	IN	2
16020 / 16018	DEF	AT out-of-place section	DEF	IN	2
16080 / 16078	DEF	AT local marker foram increase	DEF	IN	2
16200 / 16198	DEF	AT faunal change (no faunal increase)	DEF	IN	2
16320 / 16318	DEF	AT	DEF	ΑT	2
16470 / 16468	DEF	AT	DEF	IN	2
16560 / 16557	DEF	AT local marker foram increase	DEF	IN	2
16590 / 16587	DEF	AT local marker foram increase	DEF	IN	2
16650 / 16647	DEF	AT	DEF	IN	3
16770 / 16767	DEF	AT	DEF	ΑT	3
16800 / 16797	DEF	AT local marker foram increase	DEF	ΑT	3
16920 / 16916	DEF	AT local marker foram increase	DEF	ΑT	3
17010 / 17006	DEF	AT	DEF	IN	2
17250 / 17245	DEF	AT	POS	IN	2
17280 / 17275	DEF	AT faunal change (no faunal increase)	DEF	ΑT	2
17340 / 17335	DEF	AT	POS	ΑT	2
17370 / 17365	DEF	AT	DEF	IN	2
17490 / 17485	DEF	AT local marker foram increase	DEF	IN	2
17640 / 17634	POS	AT faunal change (no faunal increase)	DEF	ΑT	3
17820 / 17813	DEF	AT faunal change (no faunal increase)	DEF	ΑT	3

This report contains public paleo reports only for the time period stated

Dalas Tau Danadudau

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 65

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 12-DEC-2001 First Sample Examined: 270 Lease Number: G03936 Source of Paleo: OPERATOR **Borehole MD:** 20173 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20146 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044033500 **Rkb Elevation:** 114 Paleo Report Num: 2 of 2 Sample Range: 270 - 20173 Water Depth: 133 Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD/TVD		Paleo Top Description		<u>Ec</u>	cozone
17940 / 17933	DEF	AT faunal change (no faunal increase)	DEF	AT	3
18000 / 17993	DEF	AT	DEF	IN	2
18090 / 18082	DEF	AT	DEF	AT	2
18120 / 18112	DEF	AT	DEF	IN	2
18180 / 18172	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	IN	2
18690 / 18679	DEF	AT	DEF	AT	2
18870 / 18858	DEF	AT	POS	AT	2
18930 / 18918	DEF	AT	DEF	AT	2
19050 / 19037	DEF	AT	DEF	IN	2
19260 / 19245	DEF	AT local marker foram increase	DEF	IN	2
19530 / 19513	DEF	AT	DEF	AT	2
19650 / 19631	DEF	AT sand	DEF	AT	2
20160 / 20133	DEF	AT last sample examined	DEF	AT	2

Dalas Tau Danasistias

GEOLOGIC 02-FEB-2011

66

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 18-MAY-1998 First Sample Examined: 12000 Lease Number: G03936 Source of Paleo: OPERATOR 18790 **Borehole MD:** Well Name: JC001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18781 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044031600 **Rkb Elevation:** 100 Paleo Report Num: 1 of 3 **Sample Range:** 12000 - 18790 Water Depth: 134 Public Info Code: Y 02-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: Alex Prospect

MD / TVD		Paleo Top Description		<u> </u>	cozone
12000 / 11998	DEF	AT first sample examined	DEF	AT	2
12001 / 11999	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF	AT	2
12060 / 12058	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	2
12390 / 12388	DEF	AT local marker foram increase	DEF	AT	2
12630 / 12628	DEF	AT faunal change (no faunal increase)	DEF	AT	2
12780 / 12778	DEF	AT	DEF	AT	3
12870 / 12868	DEF	AT	DEF	AT	2
13080 / 13078	DEF	AT local marker foram increase	DEF	AT	2
13440 / 13438	POS	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	3
13680 / 13677	DEF	AT local marker foram increase	DEF	AT	3
13860 / 13857	DEF	AT faunal change (no faunal increase)	DEF	AT	3
13950 / 13947	DEF	AT local marker (general)	DEF	AT	3
14190 / 14187	DEF	AT local marker (general)	DEF	AT	3
14580 / 14576	DEF	AT	DEF	AT	2
15480 / 15475	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	AT	2
15720 / 15715	DEF	AT limestone	DEF	AT	2
15780 / 15775	DEF	AT local marker foram increase	DEF	AT	3
15810 / 15805	POS	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	3
15930 / 15925	DEF	AT	DEF	AT	2
16110 / 16105	DEF	AT local marker foram increase	DEF	AT	2
17220 / 17214	DEF	AT local marker foram increase	DEF	AT	2
17540 / 17533	DEF	AT sand	DEF	AT	2

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 67

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: BA A 19	Date of Summary: 18-MAY-1998	First Sample Examined:	12000
Lease Number: G03936	Source of Paleo: OPERATOR	Borehole MD:	18790
Well Name: JC001	Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.	Borehole TVD:	18781
API Well Number: 427044031600	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation:	100
Paleo Report Num: 1 of 3	Sample Range: 12000 - 18790	Water Depth:	134
Public Info Code: Y 02-JUN-2008	Ecozone Ea MMS: Y	Paleo ID:	003

	MD / TVD		Paleo Top Description		<u>Ecoz</u>	zone
184	10 / 18402	DEF	AT	DEF	AT	1
187	10 / 18701	DEF	AT	DEF	AT	2
187	40 / 18731	DEF	AT local marker foram increase	DEF	AT	3
187	90 / 18781	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC

68

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 26-MAY-1998 First Sample Examined: 12000 Source of Paleo: OPERATOR Lease Number: G03936 **Borehole MD:** 18790 Well Name: JC001 Paleo Done By: OPERATOR **Borehole TVD:** 18781 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044031600 **Rkb Elevation:** 100 Paleo Report Num: 2 of 3 **Sample Range:** 12000 - 18790 Water Depth: 134 Public Info Code: Y 02-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Alex Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12000 / 11998	DEF	AT first sample examined	DEF	AT
12120 / 12118	POS	IN Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
14520 / 14516	POS	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
18790 / 18781	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 69

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 19 Date of Summary: 27-MAY-1998 First Sample Examined: 12000 Source of Paleo: OPERATOR Lease Number: G03936 **Borehole MD:** 18790 Well Name: JC001 18781 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: SHELL OFFSHORE INC API Well Number:** 427044031600 **Rkb Elevation:** 100 Paleo Report Num: 3 of 3 **Sample Range:** 12000 - 18790 134 Water Depth: Public Info Code: Y 02-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Alex Prospect

MD/TVD		Paleo Top Description		Ec	ozone
12000 / 11998	DEF	AT first sample examined	DEF	AT	2
12120 / 12118	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	2
12390 / 12388	DEF	AT local marker (general)	DEF	AT	2
12690 / 12688	DEF	AT local marker (general)	DEF	AT	2
13080 / 13078	DEF	AT local marker foram increase	DEF	AT	2
13440 / 13438	DEF	AT local marker foram increase	DEF	AT	3
13680 / 13677	DEF	AT local marker (general)	DEF	AT	3
13860 / 13857	POS	AT Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT	3
14100 / 14097	POS	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	3
14520 / 14516	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	3
14640 / 14636	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	2
15480 / 15475	DEF	IN Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	2
15780 / 15775	POS	AT local marker (general)	DEF	AT	3
16110 / 16105	POS	AT local marker (general)	DEF	AT	2
17340 / 17334	DEF	AT local marker (general)	DEF	AT	2
18740 / 18731	POS	AT local marker (general)	DEF	AT	2
18789 / 18780	DEF	AT Lower (Early) Miocene	DEF	AT	2
18790 / 18781	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011

70

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 39 5030 Date of Summary: 01-MAR-2004 First Sample Examined: Lease Number: G04559 Source of Paleo: OPERATOR 18564 **Borehole MD:** Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18561 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 427044034800 **Rkb Elevation:** 109 **Sample Range:** 5030 - 18565 Paleo Report Num: 1 of 2 149 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 17-JUN-2010 Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
5030 / 5030	DEF	AT first sample examined	DEF	AT	3
5031 / 5031	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	3
5430 / 5430	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
5850 / 5850	DEF	AT	DEF	AT	2
5880 / 5880	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	2
6450 / 6450	DEF	AT	DEF	AT	3
7470 / 7470	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	3
8460 / 8460	DEF	AT Middle Miocene (Serravallian) Robulus 5 / 55	DEF	AT	3
8730 / 8730	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	3
9240 / 9240	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT	3
10340 / 10340	DEF	AT sample gap top	POS	AT	3
10440 / 10440	DEF	AT sample gap bottom	DEF	AT	3
12450 / 12450	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	3
12570 / 12570	DEF	AT	DEF	AT	4
13710 / 13710	DEF	AT	DEF	AT	3
13890 / 13890	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	3
17430 / 17429	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	3
18450 / 18447	DEF	AT	DEF	AT	2
18565 /	DEF	AT last sample examined	DEF	AT	2

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

71

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 39 12000 Date of Summary: 01-MAR-2004 First Sample Examined: Lease Number: G04559 Source of Paleo: OPERATOR 18564 **Borehole MD:** Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18561 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 427044034800 **Rkb Elevation:** 109 Paleo Report Num: 2 of 2 **Sample Range:** 12000 - 18565 Water Depth: 149 Public Info Code: Y 17-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12000 / 12000	DEF AT first sample examined	DEF AT
12600 / 12600	DEF AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF AT
18565 /	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 72

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: BA A 39	Date of Summary: 01-MAR-2004	First Sample Examined:	18330
Lease Number: G04559	Source of Paleo: OPERATOR	Borehole MD:	20496
Well Name: 005	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	20488
API Well Number: 427044034801	Drilling Operator: PIONEER NATURAL RESOURCES USA INC	Rkb Elevation:	106
Paleo Report Num: 1 of 2	Sample Range: 18330 - 20497	Water Depth:	149
Public Info Code: Y 17-JUN-2010	Ecozone Eg MMS: Y	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
18330 / 18327	DEF	AT first sample examined	DEF	AT	2
18331 / 18328	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	2
20497 /	DEF	AT last sample examined	DEF	AT	2

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 73

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: BA A 39 18330 Date of Summary: 01-MAR-2004 First Sample Examined: Lease Number: G04559 Source of Paleo: OPERATOR 20496 **Borehole MD:** Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20488 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 427044034801 **Rkb Elevation:** 106 **Sample Range:** 18330 - 20497 Paleo Report Num: 2 of 2 149 Water Depth: Public Info Code: Y 17-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, no diagnostic coccolith markers noted, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
18330 / 18327	DEF AT first sample examined	DEF AT
20497 /	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

74

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: CA 29 Date of Summary: 01-MAY-1988 First Sample Examined: 3015 Lease Number: G05740 Source of Paleo: PUBLICATION 5350 **Borehole MD:** Well Name: A001 Paleo Done By: UNKNOWN **Borehole TVD:** 5350 **API Well Number: 177284001500 Drilling Operator: TENNECO OIL COMPANY Rkb Elevation:** 68 **Sample Range:** 3015 - 5350 Paleo Report Num: 2 of 2 Water Depth: 40 Public Info Code: Y 19-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Source is Mink, R M et al, 1988, Regional geologic framework and petroleum geology of Miocene strata of Alabama coastal waters area and adjacent Federal waters area, Geological Survey of Alabama and State Oil and Gas Board Final Report, page 76

MD / TVD	Paleo Top Description	<u>Ecozone</u>
3015 / 3015	DEF AT first sample examined	DEF AT
3180 / 3180	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
4350 / 4350	POS AT Upper Miocene (Tortonian) Bigenerina "B"	DEF AT
4470 / 4470	POS AT Upper Miocene (Tortonian) Discorbis 12	DEF AT
5350 / 5350	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 75

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: CC 743 3520 Date of Summary: 23-JAN-2007 First Sample Examined: Lease Number: G26577 Source of Paleo: OPERATOR 23301 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 23292 **Drilling Operator: PETROBRAS AMERICA INC API Well Number:** 608014000400 **Rkb Elevation:** 84 Paleo Report Num: 1 of 1 **Sample Range:** 3520 - 23260 Water Depth: 1357 Public Info Code: Y 17-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram and nanno species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
3520 / 3520	DEF	AT first sample examined	DEF	AT	4
3521 / 3521	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
3522 / 3522	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	4
3640 / 3640	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	5
3730 / 3730	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
3760 / 3760	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT	5
3939 / 3939	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT	5
3940 / 3940	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
4060 / 4059	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
4150 / 4149	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5
4210 / 4209	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	5
4240 / 4239	DEF	AT	DEF	AT	4
4570 / 4569	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	4
4600 / 4599	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	4
4960 / 4959	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	4
5590 / 5589	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	4
5770 / 5769	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT	4
5860 / 5859	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	4
6010 / 6009	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	4
6310 / 6309	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	4
6490 / 6489	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	4
6550 / 6549	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 76

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:CC 743Date of Summary:23-JAN-2007First Sample Examined:3520Lease Number:G26577Source of Paleo:OPERATORBorehole MD:23301Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:23292

Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:23292Well Number:608014000400Drilling Operator:PETROBRAS AMERICA INCRkb Elevation:84

API Well Number: 608014000400 Drilling Operator: PETROBRAS AMERICA INC Rkb Elevation: 84

Paleo Report Num: 1 of 1 Sample Range: 3520 - 23260 Water Depth: 1357

Public Info Code: Y 17-OCT-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco	ozone
7240 / 7239	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
7360 / 7359	DEF	IN Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	4
7480 / 7479	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	4
7660 / 7659	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
7720 / 7719	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT	4
7959 / 7958	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	4
7960 / 7959	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	4
9060 / 9059	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
9320 / 9318	DEF	AT	DEF	AT	5
9699 / 9697	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	6
9700 / 9698	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	6
9730 / 9728	DEF	AT	DEF	AT	5
10100 / 10098	POS	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT	5
10280 / 10278	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
10400 / 10398	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT	5
10420 / 10418	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
10440 / 10438	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	6
11100 / 11098	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	6
11140 / 11138	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	6
11240 / 11238	DEF	AT	DEF	AT	5
11599 / 11597	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	5
11600 / 11598	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
11740 / 11738	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	5
11760 / 11758	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 77

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: CC 743 Date of Summary: 23-JAN-2007 First Sample Examined: 3520 Lease Number: G26577 Source of Paleo: OPERATOR **Borehole MD:** 23301 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 23292 **Drilling Operator: PETROBRAS AMERICA INC API Well Number:** 608014000400 **Rkb Elevation:** 84 Paleo Report Num: 1 of 1 **Sample Range:** 3520 - 23260 1357 Water Depth:

dies report rum.

Public Info Code: Y 17-OCT-2008 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description		<u>Eco</u>	zone
11940 / 11938 DE	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
12919 / 12917 PO	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
12920 / 12918 DE	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	6
13000 / 12998 DE	AT	DEF	AT	5
13360 / 13358 DE	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	5
14280 / 14277 DE	AT out-of-place section	DEF	AT	5
14720 / 14716 PO	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT	5
14820 / 14816 DE	AT	DEF	IN	5
14999 / 14995 DE	IN Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	IN	5
15000 / 14996 PO	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	IN	5
15039 / 15035 PO	AT out-of-place section	DEF	IN	5
15040 / 15036 PO	AT reworked material	DEF	IN	5
15440 / 15435 DE	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	IN	5
15580 / 15575 DE	AT	DEF	AT	5
15760 / 15754 DE	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	5
15980 / 15974 PO	AT Lower Miocene (Burdigalian) Cristellaria "A"	DEF	AT	5
16020 / 16014 DE	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	5
16060 / 16054 DE	AT	DEF	AT	4
17760 / 17753 DE	AT	DEF	AT	5
17880 / 17873 DE	AT	DEF	AT	4
19980 /19971 PO	IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	4
20620 / 20611 DE	AT	DEF	AT	5
21000 / 20991 DE	AT	DEF	AT	4
21360 /21351 DE	AT	DEF	AT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE: 78

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: CC 743 Date of Summary: 23-JAN-2007 First Sample Examined: 3520

Lease Number:G26577Source of Paleo:OPERATORBorehole MD:23301Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:23292

API Well Number: 608014000400 Drilling Operator: PETROBRAS AMERICA INC Rkb Elevation: 84

Paleo Report Num: 1 of 1 Sample Range: 3520 - 23260 Water Depth: 1357

Public Info Code: Y 17-OCT-2008 Ecozone Eq MMS: Y Paleo ID: 001

MD/TVD	Paleo Top Description	<u>Ecozone</u>
23180 / 23171	DEF AT	DEF AT 4
23260 / 23251	DEF AT last sample examined	DEF AT 4

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 79

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EB 159 Date of Summary: 09-JUN-1998 First Sample Examined: 0

Lease Number: G02645 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD: 14033

Well Name: A003 Paleo Done By: OPERATOR Borehole TVD: 6388

API Well Number: 608044004102 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 113

 Paleo Report Num:
 1 of 1
 Sample Range:
 0 - 0
 Water Depth:
 924

 Public Info Code:
 Y 21-JUN-2008
 Ecozone Eq MMS:
 Paleo ID:
 001

Remark: In=sand

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9473 / 4410	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF A	ΑT
11761 / 5115	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF A	AT

GEOLOGIC 02-FEB-2011 PAGE: 80

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 205 4620 Date of Summary: 01-JUN-2001 First Sample Examined: Lease Number: G17237 Source of Paleo: OPERATOR 9785 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 9783 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608044021800 **Rkb Elevation:** 84 **Sample Range:** 4620 - 9780 Paleo Report Num: 1 of 2 Water Depth: 1081 Ecozone Eq MMS: Y Public Info Code: Y 28-JUN-2008 Paleo ID: 002

Remark: Company-integrated foram and nanno report, 6410=Globorotalia triangula

MD /	TVD		Paleo Top Description		Ecoz	zone
4620 /	4620	DEF	AT first sample examined	DEF	AT	4
5570 /	5570	DEF	AT local marker foram increase	DEF	AT	4
5780 /	5780	DEF	AT sample gap top	POS	AT	4
5839 /	5839	DEF	AT sample gap bottom	DEF	IN	4
5840 /	5840	POS	AT condensed section	DEF	IN	5
5841 /	5841	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	5
5842 /	5842	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
6349 /	6349	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	5
6350 /	6350	POS	AT local marker planktic foram increase	DEF	IN	5
6410 /	6410	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
6830 /	6830	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
7040 /	7040	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
7100 /	7100	DEF	IN Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	IN	5
7130 /	7130	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	IN	5
7310 /	7310	DEF	AT local marker floral increase	DEF	IN	5
7430 /	7430	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
7550 /	7550	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7670 /	7670	DEF	AT faunal change (no faunal increase)	DEF	IN	5
7730 /	7730	DEF	AT faunal change (no faunal increase)	DEF	AT	4
8060 /	8060	DEF	AT faunal change (no faunal increase)	DEF	IN	5
8090 /	8090	DEF	AT local marker foram increase	DEF	IN	5
8150 /	8150	DEF	AT faunal change (no faunal increase)	DEF	AT	4

GEOLOGIC 02-FEB-2011

81

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 205 Date of Summary: 01-JUN-2001 First Sample Examined: 4620 Source of Paleo: OPERATOR Lease Number: G17237 **Borehole MD:** 9785 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 9783 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608044021800 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 4620 - 9780 Water Depth: 1081

Public Info Code: Y 28-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ec.	ozone
8630 / 8630	DEF	IN Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	4
8689 / 8689	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	IN	4
8690 / 8690	DEF	AT Upper Pliocene (Gelasian) Textularia crassisepta / "P"	DEF	IN	5
8720 / 8720	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	IN	5
8810 / 8810	DEF	AT local marker foram increase	DEF	IN	5
9020 / 9020	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
9140 / 9140	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	IN	5
9440 / 9440	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	IN	5
9470 / 9470	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
9710 / 9710	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
9780 / 9780	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011

82

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 205 Date of Summary: 02-JAN-2002 First Sample Examined: 4620 Lease Number: G17237 Source of Paleo: OPERATOR **Borehole MD:** 9785 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 9783 **API Well Number:** 608044021800 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 4620 - 9780 Water Depth: 1081 Public Info Code: Y 28-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, paleobathymetry ranges from middle to upper bathyal in the stratigraphic section analyzed

MD/T	<u>rvd</u>	Paleo Top Description		<u>Ecoz</u>	zone
4620 /	4620 DEF	AT first sample examined	DEF	AT	4
5839 /	5839 DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	4
5840 /	5840 DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
6349 /	6349 DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	4
6350 /	6350 DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	4
6830 /	6830 DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
7100 /	7100 DEF	IN Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	4
7430 /	7430 DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
8690 /	8690 DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	4
8720 / 8	8720 DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
9140 / 9	9140 DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	4
9470 / 9	9470 DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
9780 / 9	9780 DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 83

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 421 Date of Summary: 08-MAR-2001 First Sample Examined: 4570 Lease Number: G17255 Source of Paleo: OPERATOR **Borehole MD:** 7770 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7770 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608044020000 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 4570 - 7770 2740 Water Depth: Public Info Code: Y 12-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		Eco	zone
4570 /	4570	DEF	AT first sample examined	DEF	AT	4
5500 /	5500	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
5650 /	5650	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
5709 /	5709	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
5710 /	5710	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
5740 /	5740	DEF	AT	DEF	AT	5
5890 /	5890	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
5978 /	5978	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
5979 /	5979	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
5980 /	5980	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
6250 /	6250	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
6340 /	6340	DEF	AT local marker foram decrease	DEF	AT	5
7389 /	7389	DEF	AT local marker planktic foram increase	DEF	AT	5
7390 /	7390	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
7770 /	7770	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 84

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 421 Date of Summary: 08-MAR-2001 First Sample Examined: 4570 Lease Number: G17255 Source of Paleo: OPERATOR **Borehole MD:** 7770 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7770 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608044020000 **Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 4570 - 7770 2740 Water Depth: **Ecozone Eq MMS:** Public Info Code: Y 12-JAN-2008 Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
4570 / 4570	DEF AT first sample examined	DEF AT
4571 / 4571	DEF IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT
5709 / 5709	DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT
5710 / 5710	DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
5890 / 5890	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
5980 / 5980	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
6100 / 6100	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF AT
6310 / 6310	POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
7390 / 7390	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
7770 / 7770	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

85

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 430 Date of Summary: 07-JUN-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G19001 **Borehole MD:** 8900 Well Name: SS001 Paleo Done By: OPERATOR **Borehole TVD:** 8900 **Drilling Operator: HESS CORPORATION API Well Number:** 608044019200 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 2285 Water Depth: Public Info Code: Y 02-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
4430 / 4430	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT	
4610 / 4610	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT	
5960 / 5960	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF AT	
6230 / 6230	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT	
6380 / 6380	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT	
6560 / 6560	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT	
6920 / 6920	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT	
7340 / 7340	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT	
7730 / 7730	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT	
8090 / 8090	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT	
8240 / 8240	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT	
8810 / 8810	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF AT	

**GEOLOGIC** 02-FEB-2011 86

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 465 Date of Summary: 06-JUN-2001 First Sample Examined: 5160 Lease Number: G17259 Source of Paleo: OPERATOR **Borehole MD:** 6818 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 6467 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608044020900 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 5160 - 6780 2800 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecc	<u>ozone</u>
5160 / 5121	DEF	AT first sample examined	DEF	AT	5
5310 / 5255	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
5460 / 5385	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
5820 / 5679	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
5880 / 5727	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
6030 / 5847	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
6150 / 5943	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
6450 / 6179	DEF	AT faunal change (no faunal increase)	DEF	AT	5
6720 / 6390	DEF	AT local marker planktic foram increase	DEF	AT	5
6780 / 6438	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

87

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 465 Date of Summary: 09-JUL-2001 5160 First Sample Examined: Lease Number: G17259 Source of Paleo: OPERATOR **Borehole MD:** 6818 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 6467 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608044020900 **Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 5160 - 6780 Water Depth: 2800 Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5160 / 5121	DEF	AT first sample examined	DEF	AT
5820 / 5679	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5880 / 5727	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6060 / 5872	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
6210 / 5991	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6360 / 6109	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
6780 / 6438	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 88

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 465 Date of Summary: 06-JUN-2001 First Sample Examined: 5184 Lease Number: G17259 Source of Paleo: OPERATOR **Borehole MD:** 7638 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7098 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608044020901 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 5184 - 7638 2722 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecozon	<u>e</u>
5184 / 5143	DEF	AT first sample examined	DEF	AT 5	
5340 / 5283	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT 5	
5790 / 5658	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT 5	
5850 / 5705	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN 5	
5910 / 5752	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN 5	
6150 / 5941	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN 5	
6210 / 5988	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT 5	
6240 / 6012	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT 5	
6390 / 6132	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT 5	
6930 / 6556	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT 5	
7638 / 7098	DEF	AT last sample examined	DEF	AT 5	

GEOLOGIC 02-FEB-2011 PAGE: 89

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 465 Date of Summary: 06-JUN-2001 5184 First Sample Examined: Lease Number: G17259 Source of Paleo: OPERATOR **Borehole MD:** 7638 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7098 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608044020901 **Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 5184 - 7638 2722 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5184 / 5143	DEF	AT first sample examined	DEF	AT
5820 / 5681	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6120 / 5917	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
6150 / 5941	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6390 / 6132	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
7638 / 7098	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 90

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 465 4800 Date of Summary: 07-MAR-2008 First Sample Examined: Lease Number: G19006 Source of Paleo: OPERATOR 7800 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7800 **Drilling Operator: NOBLE ENERGY INC API Well Number:** 608044026000 **Rkb Elevation:** 69 **Sample Range:** 4800 - 7800 Paleo Report Num: 1 of 1 Water Depth: 2777 Public Info Code: Y 10-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4800 / 4800	DEF	AT first sample examined	POS	AT	5
5008 / 5008	POS	AT maximum flooding surface	DEF	AT	5
5009 / 5009	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	5
5010 / 5010	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
5489 / 5489	POS	AT maximum flooding surface	DEF	AT	5
5490 / 5490	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT	5
5818 / 5818	POS	AT maximum flooding surface	DEF	IN	5
5819 / 5819	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	IN	5
5820 / 5820	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
5849 / 5849	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	5
5850 / 5850	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
6060 / 6060	POS	AT maximum flooding surface	DEF	IN	5
6088 / 6088	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
6089 / 6089	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	5
6090 / 6090	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
6180 / 6180	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
6330 / 6330	POS	AT maximum flooding surface	DEF	IN	5
6360 / 6360	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	IN	5
6779 / 6779	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
6780 / 6780	POS	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
7800 / 7800	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 91

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 494 Date of Summary: 04-SEP-2009 5229 First Sample Examined: Lease Number: G26601 Source of Paleo: OPERATOR 8186 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8186 **API Well Number:** 608044026900 **Drilling Operator: MARINER ENERGY INC Rkb Elevation:** 86 **Sample Range:** 5229 - 8186 3256 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 17-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD/	TVD		Paleo Top Description		Ecoz	<u>zone</u>
5299 /	5299	DEF	AT first sample examined	DEF	IN	5
5300 /	5300	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	IN	5
5301 /	5301	DEF	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
5390 /	5390	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	6
5419 /	5419	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	6
5420 /	5420	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
5510 /	5510	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT	6
5539 /	5539	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT	6
5540 /	5540	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
5750 /	5750	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
5810 /	5810	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
5870 /	5870	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	6
6140 /	6140	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
6290 /	6290	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
6350 /	6350	DEF	AT sample gap top	POS	AT	6
6410 /	6410	DEF	AT sample gap bottom	DEF	AT	6
6440 /	6440	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	6
6680 /	6680	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	6
6890 /	6890	POS	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT	6
6910 /	6910	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	6
7069 /	7069	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	6
7070 /	7070	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 92

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 494 Date of Summary: 04-SEP-2009 First Sample Examined: 5229 Source of Paleo: OPERATOR Lease Number: G26601 **Borehole MD:** 8186 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8186 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608044026900 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 5229 - 8186 3256 Water Depth:

Public Info Code: Y 17-FEB-2010 Ecozone Eq MMS: Y

MD/	TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
7280 /	7280	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	6
7310 /	7310	DEF	AT local marker floral increase	DEF	AT	6
7340 /	7340	POS	AT maximum flooding surface	DEF	ΑT	6
7370 /	7370	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	6
7400 /	7400	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	ΑT	6
7579 /	7579	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	ΑT	6
7580 /	7580	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	ΑT	6
7609 /	7609	DEF	AT unconformity	DEF	ΑT	6
7610 /	7610	POS	AT maximum flooding surface	DEF	ΑT	6
7850 /	7850	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	ΑT	6
7909 /	7909	DEF	AT unconformity	DEF	AT	6
7910 /	7910	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	6
7940 /	7940	POS	AT maximum flooding surface	DEF	AT	6
7970 /	7970	POS	IN Upper Miocene (Tortonian) Globorotalia mayeri	DEF	ΑT	6
8000 /	8000	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	6
8057 /	8057	POS	AT maximum flooding surface	DEF	ΑT	6
8058 /	8058	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	ΑT	6
8059 /	8059	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	ΑT	6
8060 /	8060	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	6
8090 /	8090	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	6
8186 /	8186	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

93

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 578 6960 Date of Summary: 17-MAR-2003 First Sample Examined: Lease Number: G23240 Source of Paleo: OPERATOR **Borehole MD:** 9060 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9060 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044022900 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 6960 - 9060 3271 Water Depth: Public Info Code: Y 26-JAN-2011 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TV	<u>/D</u>	Paleo Top Description		Eco <sub>2</sub>	zone
6960 / 69	960 DEF	AT first sample examined	DEF	IN	6
7560 / 75	560 DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	6
7890 / 78	890 DEF	AT faunal change (no faunal increase)	DEF	AT	5
8250 / 82	250 POS	IN Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
8760 / 87	760 DEF	AT faunal change (no faunal increase)	DEF	IN	6
8790 / 87	790 POS	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	6
9060 / 90	060 DEF	AT last sample examined	DEF	IN	6

GEOLOGIC 02-FEB-2011

94

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 578 6960 Date of Summary: 17-MAR-2003 First Sample Examined: Lease Number: G23240 Source of Paleo: OPERATOR **Borehole MD:** 9060 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9060 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044022900 **Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 6960 - 9060 3271 Water Depth: Public Info Code: Y 26-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6960 / 6960	DEF AT first sample examined	DEF AT
6961 / 6961	DEF IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF AT
7200 / 7200	DEF AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF AT
7560 / 7560	DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF AT
7920 / 7920	DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF AT
8070 / 8070	DEF AT Upper Miocene (Tortonian) Discoaster bollii	DEF AT
8370 / 8370	DEF AT Upper Miocene (Tortonian) Discoaster hamatus	DEF AT
8610 / 8610	DEF AT Upper Miocene (Tortonian) Catinaster coalitus	DEF AT
8958 / 8958	DEF AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF AT
9060 / 9060	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 95

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 22-OCT-1999 First Sample Examined: 6720 Lease Number: G14205 Source of Paleo: OPERATOR 11990 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11989 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018400 **Rkb Elevation:** 80 **Sample Range:** 6720 - 11989 Paleo Report Num: 1 of 2 3680 Water Depth: Public Info Code: Y 25-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Nansen Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
6720 / 6720	DEF	AT first sample examined	DEF	IN	5
6840 / 6840	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
8760 / 8760	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8940 / 8940	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
9030 / 9030	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
9360 / 9360	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
9540 / 9540	DEF	AT local marker deep water fauna	DEF	IN	5
9600 / 9600	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
9660 / 9660	POS	AT local marker foram decrease	DEF	AT	5
10229 / 10229	DEF	AT reworked material	DEF	AT	5
10230 / 10230	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
11520 / 11520	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
11729 / 11729	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
11730 / 11730	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
11989 / 11988	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

96

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 26-OCT-1999 6720 First Sample Examined: Lease Number: G14205 Source of Paleo: OPERATOR 11990 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11989 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018400 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 6720 - 11989 Water Depth: 3680 Public Info Code: Y 25-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Nansen Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description		<b>Ecozone</b>
6720 / 6720	DEF	AT first sample examined	DEF	AT
6721 / 6721	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8938 / 8938	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
8939 / 8939	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8940 / 8940	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9480 / 9480	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9600 / 9600	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10200 / 10200	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	DEF	AT
11190 / 11190	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11520 / 11520	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11760 / 11760	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11989 / 11988	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 97

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EB 602	Date of Summary: 13-SEP-2000	First Sample Examined:	14310
Lease Number: G14205	Source of Paleo: OPERATOR	Borehole MD:	16907
Well Name: A003	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	13180
API Well Number: 608044019700	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	81
Paleo Report Num: 1 of 2	Sample Range: 14310 - 16907	Water Depth:	3678
Public Info Code: Y 01-SEP-2010	Ecozone Ea MMS: Y	Paleo ID:	002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozo</u>	<u>ne</u>
14310 / 11559	DEF	AT first sample examined	DEF A	ΛT :	5
14580 / 11739	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF A	ΛT :	5
15570 / 12359	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF A	ΛT :	5
15660 / 12415	POS	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF A	ΛT :	5
15780 / 12488	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF A	ΛT :	5
16110 / 12693	POS	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF A	ΛT :	5
16907 / 13175	DEF	AT last sample examined	DEF A	√T :	5

GEOLOGIC 02-FEB-2011

98

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 13-SEP-2000 First Sample Examined: 14310 Lease Number: G14205 Source of Paleo: OPERATOR **Borehole MD:** 16907 Well Name: A003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13180 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019700 **Rkb Elevation:** 81 Paleo Report Num: 2 of 2 **Sample Range:** 14310 - 16907 3678 Water Depth: Public Info Code: Y 01-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14310 / 11559	DEF	AT first sample examined	DEF	AT
14311 / 11559	DEF	IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
14640 / 11778	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
15570 / 12359	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
16890 / 13165	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
16907 / 13175	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 99

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 17-JAN-2000 First Sample Examined: 5110 Lease Number: G14205 Source of Paleo: OPERATOR 14050 **Borehole MD:** Well Name: A005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13539 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018801 **Rkb Elevation:** 81 Paleo Report Num: 1 of 2 **Sample Range:** 5110 - 14050 3678 Water Depth: Public Info Code: Y 23-JAN-2010 Ecozone Eq MMS: N Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5110 / 5110	DEF	AT first sample examined	DEF	AT
5140 / 5140	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
6340 / 6277	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
7060 / 6887	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
9669 / 9280	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9670 / 9281	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10120 / 9719	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10930 / 10508	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11680 / 11239	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	DEF	AT
13240 / 12754	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
14020 / 13510	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
14050 / 13539	DEF	AT last sample examined	DEF	AT

GEOLOGIC

100

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 17-JAN-2000 First Sample Examined: 5110 Lease Number: G14205 Source of Paleo: OPERATOR 14050 **Borehole MD:** Well Name: A005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13539 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018801 **Rkb Elevation:** 81 **Sample Range:** 5110 - 14050 Paleo Report Num: 2 of 2 3678 Water Depth: Public Info Code: Y 23-JAN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description			<u>Ecozone</u>
5110 / 5110	DEF	AT first sample examined	DEF	IN	5
5140 / 5140	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	IN	5
5230 / 5230	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
6490 / 6405	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	ΑT	5
6850 / 6710	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	5
7210 / 7014	DEF	AT local marker deep water fauna	DEF	IN	5
7420 / 7192	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
10150 / 9748	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
10780 / 10362	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	ΑT	5
11710 / 11268	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
13270 / 12783	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	5
13930 / 13423	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	ΑT	5
13960 / 13452	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
14050 / 13539	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 101

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 03-DEC-1999 First Sample Examined: 9840 Lease Number: G14205 Source of Paleo: OPERATOR 12399 **Borehole MD:** Well Name: A009 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10937 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018701 **Rkb Elevation:** 81 Paleo Report Num: 1 of 2 **Sample Range:** 9840 - 12400 3678 Water Depth: Public Info Code: Y 17-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Nansen Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	cozone
9840 / 8773	DEF	AT first sample examined	DEF	AT	5
9841 / 8773	DEF	IN Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
9960 / 8862	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
10380 / 9183	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
11190 / 9867	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
11369 / 10024	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
11370 / 10025	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
11698 / 10314	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
11699 / 10315	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
11700 / 10316	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
11900 / 10493	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
11940 / 10529	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	6
12300 / 10849	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
12360 / 10902	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
12400 / 10938	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

102

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 03-DEC-1999 9840 First Sample Examined: Lease Number: G14205 Source of Paleo: OPERATOR 12399 **Borehole MD:** Well Name: A009 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10937 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018701 **Rkb Elevation:** 81 Paleo Report Num: 2 of 2 **Sample Range:** 9840 - 12400 3678 Water Depth: Public Info Code: Y 17-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Nansen Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9840 / 8773	DEF	AT first sample examined	DEF	AT
9900 / 8817	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10050 / 8929	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10830 / 9552	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11190 / 9867	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11370 / 10025	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11700 / 10316	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11701 / 10317	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11760 / 10369	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
12330 / 10875	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
12360 / 10902	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
12390 / 10929	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
12400 / 10938	DEF	AT last sample examined	DEF	AT
	9840 / 8773 9900 / 8817 10050 / 8929 10830 / 9552 11190 / 9867 11370 /10025 11700 /10316 11701 /10317 11760 /10369 12330 /10875 12360 /10902 12390 /10929	9840 / 8773 DEF  9900 / 8817 DEF  10050 / 8929 POS  10830 / 9552 POS  11190 / 9867 DEF  11370 /10025 DEF  11700 /10316 DEF  11701 /10317 POS  11760 /10369 DEF  12330 /10875 DEF  12390 /10902 DEF	9840 / 8773 DEF AT first sample examined 9900 / 8817 DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei 10050 / 8929 POS AT Upper Pliocene (Gelasian) Discoaster brouweri 10830 / 9552 POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus 11190 / 9867 DEF AT Upper Pliocene (Gelasian) Discoaster surculus 11370 / 10025 DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis 11700 / 10316 DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme) 11701 / 10317 POS AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica 11760 / 10369 DEF AT Lower Pliocene (Zanclian) Sphenolithus abies "B" 12330 / 10875 DEF AT Upper Miocene (Tortonian) Discoaster calcaris 12360 / 10902 DEF AT Upper Miocene (Tortonian) Discoaster loeblichii 12390 / 10929 DEF AT Upper Miocene (Tortonian) Catinaster mexicanus	9840 / 8773 DEF AT first sample examined DEF 9900 / 8817 DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei DEF 10050 / 8929 POS AT Upper Pliocene (Gelasian) Discoaster brouweri DEF 10830 / 9552 POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus DEF 11190 / 9867 DEF AT Upper Pliocene (Gelasian) Discoaster surculus DEF 11370 /10025 DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis DEF 11700 /10316 DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme) DEF 11701 /10317 POS AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica DEF 11760 /10369 DEF AT Lower Pliocene (Zanclian) Sphenolithus abies "B" DEF 12330 /10875 DEF AT Upper Miocene (Tortonian) Discoaster calcaris DEF 12360 /10902 DEF AT Upper Miocene (Tortonian) Discoaster loeblichii DEF 12390 /10929 DEF AT Upper Miocene (Tortonian) Catinaster mexicanus

GEOLOGIC 02-FEB-2011

103

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 8000 Date of Summary: 31-MAR-2000 First Sample Examined: Lease Number: G14205 Source of Paleo: OPERATOR 12031 **Borehole MD:** Well Name: SS004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12028 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019000 **Rkb Elevation:** 81 Paleo Report Num: 1 of 2 **Sample Range:** 8000 - 12030 3678 Water Depth: Public Info Code: Y 19-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Nansen Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
8000 / 8000	DEF	AT first sample examined	DEF	AT	5
8089 / 8089	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8090 / 8090	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
9140 / 9140	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
9590 / 9590	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
9800 / 9800	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
9830 / 9830	DEF	AT foram flood	DEF	IN	5
9950 / 9949	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
10040 / 10039	DEF	AT local marker foram decrease	DEF	AT	5
11630 / 11628	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
11660 / 11658	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
12030 / 12027	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

104

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 First Sample Examined: 8000 Date of Summary: 31-MAR-2000 Lease Number: G14205 Source of Paleo: OPERATOR 12031 **Borehole MD:** Well Name: SS004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12028 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019000 **Rkb Elevation:** 81 Paleo Report Num: 2 of 2 **Sample Range:** 8000 - 12030 3678 Water Depth: Public Info Code: Y 19-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Nansen Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8000 / 8000	DEF	AT first sample examined	DEF	AT
8090 / 8090	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
8900 / 8900	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9140 / 9140	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9590 / 9590	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9860 / 9860	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	AT
9950 / 9949	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11630 / 11628	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11690 / 11688	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
12020 / 12017	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12030 / 12027	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE:

105

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 11870 Date of Summary: 31-MAR-2000 First Sample Examined: Lease Number: G14205 Source of Paleo: OPERATOR 15410 **Borehole MD:** Well Name: SS004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15385 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019001 **Rkb Elevation:** 81 **Sample Range:** 11870 - 15410 3678 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 05-APR-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Nansen Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11870 / 11866	DEF	AT first sample examined	DEF	AT
11930 / 11925	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
12050 / 12044	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
13460 / 13449	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
13490 / 13479	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
13491 / 13480	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
13940 / 13927	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
14030 / 14017	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
14120 / 14106	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
14360 / 14345	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
14390 / 14375	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
14450 / 14434	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
14510 / 14494	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
14630 / 14613	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
14720 / 14702	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
14721 / 14703	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
14840 / 14821	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
14900 / 14880	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT
14930 / 14910	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
14931 / 14911	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
14932 / 14912	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
14990 / 14969	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 106

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 31-MAR-2000 11870 First Sample Examined:

Lease Number: G14205 Source of Paleo: OPERATOR 15410 **Borehole MD:** 

Well Name: SS004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15385

**API Well Number:** 608044019001 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 81

**Sample Range:** 11870 - 15410 3678 Paleo Report Num: 1 of 2 Water Depth: 001

Public Info Code: Y 05-APR-2010 **Ecozone Eq MMS:** Paleo ID:

MD / TVD **Paleo Top Description Ecozone** DEF AT Middle Miocene (Serravallian) Discoaster petaliformis 14991 / 14970 DEF AT 15410 / 15382 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 107

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 11870 Date of Summary: 31-MAR-2000 First Sample Examined: Lease Number: G14205 Source of Paleo: OPERATOR 15410 **Borehole MD:** Well Name: SS004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15385 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019001 **Rkb Elevation:** 81 **Sample Range:** 11870 - 15410 Paleo Report Num: 2 of 2 3678 Water Depth: Public Info Code: Y 05-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Nansen Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	ozone
11870 / 11866	DEF	AT first sample examined	DEF	AT	5
12050 / 12044	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
12140 / 12134	POS	AT Upper Pliocene (Gelasian) Textularia crassisepta / "P"	DEF	IN	5
12230 / 12223	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12529 / 12521	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
12530 / 12522	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
12830 / 12821	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
13640 / 13629	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
13938 / 13925	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
13939 / 13926	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
13940 / 13927	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
13970 / 13957	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	IN	5
14180 / 14166	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
14240 / 14226	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	5
14660 / 14642	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	IN	5
14810 / 14791	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	5
14870 / 14850	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	IN	5
14897 / 14877	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	IN	5
14898 / 14878	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	5
14899 / 14879	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	IN	5
14900 / 14880	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	IN	5
14929 / 14909	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 108

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EB 602Date of Summary: 31-MAR-2000First Sample Examined: 11870Lease Number: G14205Source of Paleo: OPERATORBorehole MD: 15410

Well Name: SS004 Paleo Done By: PALEO-DATA, INC. Borehole TVD: 15385

API Well Number: 608044019001 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION Rkb Elevation: 81

Paleo Report Num: 2 of 2 Sample Range: 11870 - 15410 Water Depth: 3678

Public Info Code: Y 05-APR-2010 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description	Ecozone
14930 / 14910	DEF AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF IN 5
15410 / 15382	DEF AT last sample examined	DEF IN 5

GEOLOGIC 02-FEB-2011

109

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 13-SEP-2000 12900 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 17250 **Borehole MD:** Well Name: A006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14259 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019600 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 12900 - 17250 3680 Water Depth: Public Info Code: Y 28-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	zone
12900 / 10539	DEF	AT first sample examined	DEF	AT	5
12901 / 10540	DEF	IN Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
13620 / 11141	POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
15209 / 12504	POS	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	5
15210 / 12505	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
16530 / 13640	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
16800 / 13871	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
17250 / 14259	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 110

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 23-OCT-2000 12900 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 17250 **Borehole MD:** Well Name: A006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14259 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019600 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 12900 - 17250 3680 Water Depth: Public Info Code: Y 28-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

MD / TVD	Paleo Top Description	<b>Ecozone</b>
12900 / 10539	DEF AT first sample examined DE	F AT
13440 / 10988	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei DE	F AT
13620 / 11141	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri DE	F AT
16140 / 13306	POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus DE	F AT
16560 / 13665	DEF AT Upper Pliocene (Gelasian) Discoaster surculus DE	F AT
16800 / 13871	POS AT Upper Pliocene (Piacenzian) Discoaster tamalis DE	F AT
17149 / 14172	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies DE	F AT
17150 / 14172	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica DE	F AT
17220 / 14233	DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	F AT
17250 / 14259	DEF AT last sample examined DE	F AT

GEOLOGIC 02-FEB-2011 PAGE: 111

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 20-OCT-2000 13500 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 15516 **Borehole MD:** Well Name: A006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13870 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019601 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 13500 - 15515 3680 Water Depth: Public Info Code: Y 05-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
13500 / 12231	DEF	AT first sample examined	DEF	AT	5
13501 / 12232	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
13800 / 12499	DEF	IN Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
13950 / 12631	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14130 / 12786	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	5
14309 / 12937	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	ΑT	5
14310 / 12938	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
14580 / 13153	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	ΑT	5
14610 / 13177	POS	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	ΑT	5
14640 / 13200	DEF	AT local marker foram decrease	DEF	AT	5
14850 / 13363	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
14879 / 13385	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
14880 / 13386	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
14970 / 13454	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
15120 / 13567	POS	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	IN	5
15180 / 13613	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
15450 / 13819	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	5
15515 / 13869	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 112

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 13500 Date of Summary: 20-OCT-2000 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 15516 **Borehole MD:** Well Name: A006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13870 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019601 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 13500 - 15515 Water Depth: 3680 Public Info Code: Y 05-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 003

_	MD / TVD		Paleo Top Description		<u>Ecozone</u>
	13500 / 12231	DEF	AT first sample examined	DEF	AT
	13501 / 12232	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
	13530 / 12259	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
	13710 / 12420	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
	14010 / 12683	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
	14310 / 12938	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
	14790 / 13316	POS	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
	14850 / 13363	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
	14940 / 13432	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
	15150 / 13590	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
	15240 / 13658	POS	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
	15515 / 13869	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

113

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 05-DEC-2000 10200 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 12736 **Borehole MD:** Well Name: A008 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10099 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019402 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 10200 - 12756 3680 Water Depth: Public Info Code: Y 25-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD	Paleo Top Description	<u> </u>	cozone
10200 / 8742	DEF AT first sample examined	DEF AT	5
10469 / 8881	DEF IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acm	ne "B") DEF AT	5
10470 / 8882	DEF AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF AT	5
11100 / 9220	DEF AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF AT	5
11130 / 9237	DEF AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF AT	5
11190 / 9271	DEF AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF AT	5
11280 / 9322	POS AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT	5
11580 / 9487	DEF AT local marker foram decrease	DEF AT	5
12420 / 9928	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT	5
12720 / 10090	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT	5
12756 /	DEF AT last sample examined	DEF AT	5

GEOLOGIC 02-FEB-2011 PAGE: 114

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 05-DEC-2000 10200 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 12736 **Borehole MD:** Well Name: A008 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10099 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019402 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 10200 - 12736 3680 Water Depth: Public Info Code: Y 25-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 003

MD /	TVD		Paleo Top Description		<u>Ecozone</u>
10200 /	8742	DEF	AT first sample examined	DEF	AT
10470 /	8882	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10860 /	9090	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
12329 /	9880	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
12330 /	9881	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
12450 /	9944	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12756 /		DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

115

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 Date of Summary: 05-DEC-2000 11610 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 15685 **Borehole MD:** Well Name: A008 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11699 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019403 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 11610 - 15685 3680 Water Depth: Public Info Code: Y 16-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
11610 / 9504	DEF	AT first sample examined	DEF	AT	5
11880 / 9650	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14130 / 10765	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
14610 / 10994	DEF	AT	DEF	IN	5
14850 / 11107	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
15685 / 11699	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011

PAGE:

116

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 602 11610 Date of Summary: 05-DEC-2000 First Sample Examined: Lease Number: G20725 Source of Paleo: OPERATOR 15685 **Borehole MD:** Well Name: A008 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11699 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044019403 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 11610 - 15685 3680 Water Depth: Public Info Code: Y 16-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 002

MD/TVD		Paleo Top Description		<u>Ecozone</u>
11610 / 9504	DEF	AT first sample examined	DEF	AT
14100 / 10750	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
14850 / 11107	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
15685 / 11699	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

117

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 5300 Date of Summary: 13-JAN-2000 First Sample Examined: Lease Number: G09183 Source of Paleo: OPERATOR 11800 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11799 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018600 **Rkb Elevation:** 85 **Sample Range:** 5300 - 11800 3678 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 30-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
5300 / 5300	DEF	AT first sample examined	DEF	AT	4
7310 / 7310	DEF	AT local marker foram increase	DEF	AT	4
7430 / 7430	DEF	AT local marker planktic foram increase	DEF	AT	5
7850 / 7850	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
8000 / 8000	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
8120 / 8120	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
8300 / 8300	DEF	AT faunal change (no faunal increase)	DEF	AT	5
8450 / 8450	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
8630 / 8630	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
9050 / 9050	DEF	AT local marker planktic foram increase	DEF	AT	5
9530 / 9530	DEF	AT pyrite	DEF	AT	5
9710 / 9710	DEF	AT local marker planktic foram increase	DEF	AT	5
9740 / 9740	DEF	AT local marker foram decrease	DEF	AT	5
10160 / 10160	DEF	AT local marker planktic foram increase	DEF	AT	5
10190 / 10190	DEF	AT local marker foram decrease	DEF	AT	5
10220 / 10220	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
10310 / 10310	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	5
10400 / 10400	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10879 / 10878	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	AT	5
10880 / 10879	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	5
11030 / 11029	DEF	AT local marker deep water fauna	DEF	IN	5
11450 / 11449	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5

GEOLOGIC

118

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 Date of Summary: 13-JAN-2000 First Sample Examined: 5300 Lease Number: G09183 Source of Paleo: OPERATOR **Borehole MD:** 11800 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11799 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018600 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 5300 - 11800 3678 Water Depth: Public Info Code: Y 30-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11480 / 11479	DEF AT	Lower Pliocene (Zanclian) Uvigerina rustica	DEF II	N 5
11510 / 11509	DEF AT	Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF II	N 5
11569 / 11568	DEF AT	pyrite	DEF II	N 5
11570 / 11569	DEF AT	Lower Pliocene (Zanclian) Globigerina nepenthes	DEF II	N 5
11600 / 11599	DEF AT	Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF II	N 5
11660 / 11659	DEF AT	Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF II	N 5
11800 / 11799	DEF AT	last sample examined	DEF II	N 5

GEOLOGIC 02-FEB-2011 PAGE: 119

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 5300 Date of Summary: 13-JAN-2000 First Sample Examined: Lease Number: G09183 Source of Paleo: OPERATOR 11800 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11799 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018600 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 5300 - 11800 3678 Water Depth: Public Info Code: Y 30-NOV-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>	Paleo Top Description		<u>Ecozone</u>
0 DEF	AT first sample examined	DEF	AT
0 DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
0 DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
0 POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
0 DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
0 DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
0 DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	DEF	AT
0 POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
0 DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
0 DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9 DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
9 DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9 DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
9 DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
9 DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
9 DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9 DEF	AT last sample examined	DEF	AT
	0 DEF 0 DEF 0 POS 0 DEF 9 DEF 9 DEF 9 DEF 9 DEF	DEF AT first sample examined  DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)  DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)  POS AT Lower Pleistocene (Calabrian) Helicosphaera sellii  DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei  DEF AT Upper Pliocene (Gelasian) Discoaster brouweri  DEF AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)  POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus  DEF AT Upper Pliocene (Gelasian) Discoaster surculus  DEF AT Upper Pliocene (Gelasian) Discoaster surculus  DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis  DEF AT Lower Pliocene (Zanclian) Sphenolithus abies  DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B"  DEF AT Lower Pliocene (Zanclian) Sphenolithus abies "B"  DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus  DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus  DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF AT Irst sample examined DEF DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme) DEF DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) DEF DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii DEF DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii DEF DEF AT Upper Pliocene (Galasian) Discoaster brouweri DEF DEF AT Upper Pliocene (Gelasian) Discoaster brouweri (increase) DEF DEF AT Upper Pliocene (Gelasian) Discoaster brouweri (increase) DEF DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus DEF DEF AT Upper Pliocene (Gelasian) Discoaster surculus DEF DEF AT Upper Pliocene (Piacenzian) Discoaster surculus DEF DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis DEF DEF AT Lower Pliocene (Zanclian) Sphenolithus abies DEF DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica DEF DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme) DEF DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus DEF DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus DEF DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus DEF DEF AT Lower Pliocene (Zanclian) Ceratolithus acutus

GEOLOGIC 02-FEB-2011

PAGE: 120

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 Date of Summary: 13-JAN-1998 First Sample Examined: 10220 Lease Number: G09184 Source of Paleo: OPERATOR **Borehole MD:** 12312 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11025 Drilling Operator: READING & BATES DEVELOPMENT CO **API Well Number:** 608044016803 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 10220 - 12320 3668 Water Depth: Public Info Code: Y 12-JAN-2008 Ecozone Eq MMS: N Paleo ID: 002

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10220 / 9594	DEF	AT first sample examined	DEF	AT
10221 / 9595	DEF	IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
10520 / 9802	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11630 / 10547	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12139 / 10901	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12140 / 10902	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12260 / 10988	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
12320 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

121

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 Date of Summary: 13-JAN-1998 10220 First Sample Examined: Lease Number: G09184 Source of Paleo: OPERATOR **Borehole MD:** 12312 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11025 Drilling Operator: READING & BATES DEVELOPMENT CO **API Well Number:** 608044016803 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 10220 - 12320 3668 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 12-JAN-2008 Paleo ID: 003

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
10220 / 9594	DEF	AT first sample examined	DEF	AT	5
10221 / 9595	DEF	AT poor sample interval top	DEF	AT	5
11150 / 10224	DEF	AT poor sample interval bottom	DEF	AT	5
11840 / 10692	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
12230 / 10966	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
12320 /	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

122

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 Date of Summary: 04-NOV-2003 First Sample Examined: 8380 Lease Number: G20729 Source of Paleo: OPERATOR 14591 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12259 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044024000 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 8380 - 14590 3635 Water Depth: Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
8380 / 7501	DEF	AT first sample examined	DEF	AT	5
8381 / 7502	DEF	IN Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
8920 / 7839	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
9430 / 8147	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
9580 / 8237	DEF	AT	DEF	IN	5
10180 / 8595	DEF	AT	DEF	AT	5
10540 / 8817	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
10630 / 8874	DEF	AT	DEF	IN	5
10750 / 8950	DEF	AT	DEF	AT	5
12610 / 10441	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
12970 / 10766	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
13270 / 11041	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
14080 / 11788	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
14500 / 12173	DEF	AT	DEF	IN	5
14590 / 12256	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 123

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 642 Date of Summary: 04-NOV-2003 First Sample Examined: 8380 Lease Number: G20729 Source of Paleo: OPERATOR **Borehole MD:** 14591 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12259 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044024000 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 8380 - 14590 3635 Water Depth: Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
8380 / 7501	DEF AT first sample examined	DEF AT
8381 / 7502	DEF IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
8830 / 7782	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
9640 / 8273	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
10540 / 8817	POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
12196 / 10077	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
12910 / 10711	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
13150 / 10931	POS AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT
14050 / 11760	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
14560 / 12228	DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF AT
14590 / 12256	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

124

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 643 Date of Summary: 15-OCT-1999 6000 First Sample Examined: Lease Number: G09184 Source of Paleo: OPERATOR **Borehole MD:** 9478 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9475 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018200 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 6000 - 9478 3453 Water Depth: Public Info Code: Y 15-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	zone
6000 / 5997	DEF	AT first sample examined	DEF	AT	4
6840 / 6837	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
7260 / 7257	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
7440 / 7437	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
8010 / 8007	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
8790 / 8787	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
9150 / 9147	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
9478 / 9475	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

125

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 643 Date of Summary: 27-OCT-1999 6000 First Sample Examined: Lease Number: G09184 Source of Paleo: OPERATOR 9478 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9475 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018200 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 6000 - 9478 Water Depth: 3453 Public Info Code: Y 15-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 002

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6000 / 5997	DEF AT first sample examined	DEF AT
6030 / 6027	DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT
6840 / 6837	POS AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
7260 / 7257	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
7320 / 7317	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
8040 / 8037	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	DEF AT
8310 / 8307	POS IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
8760 / 8757	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
8820 / 8817	DEF AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF AT
9150 / 9147	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
9478 / 9475	DEF AT last sample examined	DEF AT

GEOLOGIC

PAGE: 126

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 643 Date of Summary: 13-JAN-2000 6000 First Sample Examined: Lease Number: G09184 Source of Paleo: OPERATOR **Borehole MD:** 8044 Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7604 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018900 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 6000 - 7980 3450 Water Depth: Public Info Code: Y 16-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TV	<u>D</u>	Paleo Top Description		<u>Eco</u>	zone
6000 / 59	58 DEF	AT first sample examined	DEF	AT	4
7230 / 69	54 DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
7260 / 69	78 POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
7350 / 70	50 DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
7380 / 70	74 DEF	AT local marker foram decrease	DEF	AT	5
7470 / 71	46 DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
7680 / 73	14 DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
7770 / 73	85 POS	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	IN	5
7980 / 75	53 DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 127

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 643 Date of Summary: 13-JAN-2000 6000 First Sample Examined: Lease Number: G09184 Source of Paleo: OPERATOR **Borehole MD:** 8044 Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7604 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018900 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 6000 - 7980 3450 Water Depth: Public Info Code: Y 16-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 002

MD / TVD	_	Paleo Top Description		<b>Ecozone</b>
6000 / 595	8 DEF	AT first sample examined	DEF	AT
6780 / 659	2 POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7260 / 697	8 DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7320 / 702	6 DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7800 / 740	9 DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7860 / 745	7 DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
7980 / 755	3 DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

128

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 643 7890 Date of Summary: 13-JAN-2000 First Sample Examined: Lease Number: G09184 Source of Paleo: OPERATOR 11591 **Borehole MD:** Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10483 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018901 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 7890 - 11580 3450 Water Depth: Public Info Code: Y 01-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7890 / 7479	DEF AT first sample examined	DEF IN 5
7920 / 7503	DEF IN Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF IN 5
8339 / 7843	DEF AT pyrite	DEF AT 5
8340 / 7843	DEF AT local marker deep water fauna	DEF AT 5
9089 / 8452	POS AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF AT 5
9090 / 8453	POS AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT 5
10260 / 9399	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT 5
10680 / 9742	POS AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT 5
11220 / 10183	POS AT Lower Pliocene (Zanclian) Cibicides marsi	DEF AT 5
11310 / 10256	POS AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF AT 5
11340 / 10280	POS AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF IN 5
11580 / 10474	DEF AT last sample examined	DEF IN 5

GEOLOGIC 02-FEB-2011

129

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 643 Date of Summary: 13-JAN-2000 First Sample Examined: 7890 Lease Number: G09184 Source of Paleo: OPERATOR 11591 **Borehole MD:** Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10483 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044018901 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 7890 - 11580 3450 Water Depth: Public Info Code: Y 01-FEB-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7890 / 7479	DEF	AT first sample examined	DEF	AT
8070 / 7624	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
8940 / 8331	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
10260 / 9399	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10710 / 9766	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11310 / 10256	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
11400 / 10328	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11490 / 10401	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11580 / 10474	DEF	AT last sample examined	DEF	AT

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 130

12200

12107

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 686 Date of Summary: 30-MAR-2001 First Sample Examined: 0

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G20729

Paleo Done By: OPERATOR Well Name: 001

Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608044021000 **Rkb Elevation:** 78 4050

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6400 / 6399	DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF AT
8900 / 8898	DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF AT

GEOLOGIC 02-FEB-2011

131

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 688 Date of Summary: 04-JUN-1998 First Sample Examined: 5610 Lease Number: G09191 Source of Paleo: OPERATOR **Borehole MD:** 10182 Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10182 Drilling Operator: READING & BATES DEVELOPMENT CO **API Well Number:** 608044017400 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 5610 - 10110 3751 Water Depth: Public Info Code: Y 03-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		Ecoz	zone
5610 / 5610	DEF	AT first sample examined	POS	AT	5
5611 / 5611	DEF	IN cement	POS	AT	5
5850 / 5850	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
5910 / 5910	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
8520 / 8520	DEF	AT faunal change (no faunal increase)	DEF	IN	5
8550 / 8550	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
8610 / 8610	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
8760 / 8760	POS	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	IN	5
8940 / 8940	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
9150 / 9150	DEF	AT local marker foram decrease	DEF	IN	5
10110 / 10110	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC

02-FEB-2011 PAGE: 132

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EB 688	Date of Summary: 09-JUN-1998	First Sample Examined:	5610
Lease Number: G09191	Source of Paleo: OPERATOR	Borehole MD:	10182
Well Name: 004	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	10182
API Well Number: 608044017400	Drilling Operator: READING & BATES DEVELOPMENT CO	Rkb Elevation:	85
Paleo Report Num: 2 of 2	Sample Range: 5610 - 10110	Water Depth:	3751
Public Info Code: Y 03-MAR-2008	Ecozone Eg MMS:	Paleo ID:	003

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5610 / 5610	DEF	AT first sample examined	DEF	AT
5970 / 5970	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8400 / 8400	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
8490 / 8490	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
8910 / 8910	DEF	AT local marker floral increase	DEF	AT
10110 / 10110	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

**PAGE:** 133

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EB 688	Date of Summary: 11-JUL-2001	First Sample Examined:	6800
Lease Number: G09191	Source of Paleo: OPERATOR	Borehole MD:	10523
Well Name: 005	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	9570
API Well Number: 608044021900	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	85
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 6800 - 10523	Water Depth:	3589
Public Info Code: Y 19-AUG-2010	Ecozone Eg MMS: Y	Paleo ID:	002

<u>MD/</u>	TVD		Paleo Top Description		Ec	cozone
6800 /	6800	DEF	AT first sample examined	DEF	IN	5
7370 /	7366	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
7730 /	7712	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
9710 /	9108	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	IN	5
10130 /	9343	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
10523 /	9571	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 134

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 688 6800 Date of Summary: 11-JUL-2001 First Sample Examined: Lease Number: G09191 Source of Paleo: OPERATOR 10523 **Borehole MD:** Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9570 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044021900 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 6800 - 10523 Water Depth: 3589 Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD /	<u>TVD</u>		Paleo Top Description		<u>Ecozone</u>
6800 /	6800	DEF	AT first sample examined	DEF	AT
6801 /	6801	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7370 /	7366	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
7430 /	7425	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
8060 /	8008	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
9830 /	9175	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10070 /	9309	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10523 /	9571	DEF	AT last sample examined	DEF	AT

GEOLOGIC

135

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 688 7080 Date of Summary: 13-JUN-2001 First Sample Examined: Lease Number: G09191 Source of Paleo: OPERATOR **Borehole MD:** 7791 Well Name: SS006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7610 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044022100 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 7080 - 10230 3788 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
7080 / 7009	DEF	AT first sample examined	DEF	AT	4
8670 /	DEF	AT	POS	AT	5
8850 /	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
8970 /	DEF	AT	DEF	IN	5
9150 /	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
9570 /	DEF	AT	DEF	AT	5
10230 /	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

136

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 688 7080 Date of Summary: 13-JUN-2001 First Sample Examined: Lease Number: G09191 Source of Paleo: OPERATOR 7791 **Borehole MD:** Well Name: SS006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7610 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044022100 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 7080 - 10230 3788 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

_	MD / TVD		Paleo Top Description		<u>Ecozone</u>
	7080 / 7009	DEF	AT first sample examined	DEF	AT
	8280 /	POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
	8700 /	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
	8850 /	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
	8940 /	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
	8970 /	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
	9330 /	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
	10230 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 137

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EB 688	Date of Summary: 12-JUN-2001	First Sample Examined:	10260
Lease Number: G09191	Source of Paleo: OPERATOR	Borehole MD:	10908
Well Name: SS006	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	10553
API Well Number: 608044022101	<b>Drilling Operator: KERR-MCGEE OIL &amp; GAS CORPORATION</b>	Rkb Elevation:	78
Paleo Report Num: 1 of 2	Sample Range: 10260 - 10920	Water Depth:	3788
Public Info Code: Y 19-AUG-2010	Ecozone Ea MMS: Y	Paleo ID:	001

MD / TVD	Paleo Top Description		<u>Ecozone</u>
10260 / 9909	DEF AT first sample examined	DEF AT	5
10890 / 10535	POS AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT	5
10920 /	DEF AT last sample examined	DEF AT	5

GEOLOGIC 02-FEB-2011

PAGE: 138

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 688 Date of Summary: 13-JUN-2001 10230 First Sample Examined: Lease Number: G09191 Source of Paleo: OPERATOR 10908 **Borehole MD:** Well Name: SS006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10553 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044022101 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 10230 - 10920 3788 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
10230 / 9880	DEF AT first sample examined	DEF AT
10800 / 10445	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
10920 /	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 139

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 688 7750 Date of Summary: 22-APR-2008 First Sample Examined: Lease Number: G09191 Source of Paleo: OPERATOR 10770 **Borehole MD:** Well Name: SS006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9867 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608044022102 **Rkb Elevation:** 86 **Sample Range:** 7750 - 10780 Paleo Report Num: 1 of 1 Water Depth: 3788 Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD/	TVD		Paleo Top Description		Eco	zone
7750 /	7562	DEF	AT first sample examined	DEF	IN	4
8410 /	8108	POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	IN	4
8710 /	8331	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	4
8920 /	8478	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
8978 /	8517	POS	AT maximum flooding surface	DEF	AT	5
8979 /	8518	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	5
8980 /	8519	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
9127 /	8620	POS	AT maximum flooding surface	DEF	IN	5
9128 /	8621	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
9129 /	8621	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
9130 /	8622	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
9459 /	8848	POS	AT unconformity	DEF	IN	5
9460 /	8849	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
9550 /	8910	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	IN	5
10000 /	9232	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10780 /		DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 140

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 715 6380 Date of Summary: 01-JUN-2005 First Sample Examined: Lease Number: G20733 Source of Paleo: OPERATOR 11507 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11265 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044024700 **Rkb Elevation:** 86 **Sample Range:** 6380 - 11510 Paleo Report Num: 1 of 2 Water Depth: 4074 Public Info Code: Y 30-SEP-2008 Ecozone Eq MMS: N Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6380 / 6380	DEF	AT first sample examined	DEF	AT
6469 / 6469	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
6470 / 6470	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
6530 / 6530	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
6590 / 6590	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
6740 / 6740	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
6770 / 6770	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
7010 / 7010	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
7130 / 7130	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
7190 / 7190	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
7220 / 7220	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
7250 / 7250	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
7580 / 7580	DEF	AT Upper Miocene (Tortonian) Discoaster deflandrei	DEF	AT
7699 / 7699	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
7700 / 7700	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
8000 / 8000	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
8120 / 8120	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
8150 / 8150	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
10712 / 10488	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
10820 / 10592	POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
11090 / 10853	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
11150 / 10912	DEF	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 141

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 715 Date of Summary: 01-JUN-2005 First Sample Examined: 6380 Lease Number: G20733 Source of Paleo: OPERATOR 11507 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11265 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044024700 **Rkb Elevation:** 86 **Sample Range:** 6380 - 11510 Paleo Report Num: 1 of 2 4074 Water Depth: Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** N Paleo ID: 001

_	MD / TVD		Paleo Top Description		<u>Ecozone</u>
	11180 / 10941	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
	11239 / 10999	POS	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
	11240 /11000	POS	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
	11402 / 11161	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	AT
	11510 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 142

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 715 Date of Summary: 01-JUN-2005 First Sample Examined: 6380 Lease Number: G20733 Source of Paleo: OPERATOR 11507 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11265 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044024700 **Rkb Elevation:** 86 **Sample Range:** 6380 - 11510 Paleo Report Num: 2 of 2 4074 Water Depth: Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
6380 / 6380	DEF	AT first sample examined	DEF	AT	6
6381 / 6381	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
6500 / 6500	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
6920 / 6920	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6
6950 / 6950	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	6
7250 / 7250	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	6
7579 / 7579	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	6
7580 / 7580	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	6
7700 / 7700	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
7790 / 7790	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	6
8120 / 8120	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
8540 / 8537	POS	IN Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
10940 / 10707	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
11210 / 10971	DEF	AT	DEF	AT	5
11299 / 11058	POS	IN Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
11300 / 11059	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	5
11402 / 11161	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
11450 / 11208	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
11510 /	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

143

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 758 Date of Summary: 07-MAR-2003 First Sample Examined: 6810 Lease Number: G20745 Source of Paleo: OPERATOR 9510 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8896 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044022300 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 6810 - 9510 Water Depth: 4114 Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD/	TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
6810 /	6789	DEF	AT first sample examined	DEF	AT	5
7140 /	7102	POS	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	IN	6
7290 /	7239	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	6
7410 /	7348	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	6
8550 /	8228	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	6
8580 /	8249	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	IN	6
8670 /	8312	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	6
8700 /	8333	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	IN	6
8760 /	8375	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	6
8860 /	8445	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	IN	6
9180 /	8669	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	6
9300 /	8752	DEF	AT	DEF	AT	5
9510 /	8896	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 144

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EB 758 6810 Date of Summary: 07-MAR-2003 First Sample Examined: Lease Number: G20745 Source of Paleo: OPERATOR **Borehole MD:** 9510 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8896 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608044022300 **Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 6810 - 9510 Water Depth: 4114 Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 002

MD/	TVD		Paleo Top Description		<b>Ecozone</b>
6810 /	6789	DEF	AT first sample examined	DEF	AT
6900 /	6876	POS	IN Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
6990 /	6962	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
7110 /	7074	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
7200 /	7157	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
7290 /	7239	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
7350 /	7294	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
8040 /	7856	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
8160 /	7945	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
8370 /	8099	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
8460 /	8164	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
8520 /	8207	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
8670 /	8312	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
8760 /	8375	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
9210 /	8690	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
9330 /	8772	POS	AT Middle Miocene (Langhian) Discoaster calculosus	DEF	AT
9360 /	8793	POS	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
9510 /	8896	DEF	AT last sample examined	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 145

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 48 Date of Summary: 19-JUN-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: 00767 **Borehole MD:** 10848 Well Name: H006 Paleo Done By: OPERATOR **Borehole TVD:** 10278 **Drilling Operator:** NEWFIELD EXPLORATION COMPANY **API Well Number:** 177034087700 **Rkb Elevation:** 169 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 56

Remark:

Public Info Code: Y 02-JUN-2010

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9390 / 9170	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF A	Т
10382 / 9908	DEF	IN Middle Miocene (Serravallian) Cibicides opima	DEF A	Т

**Ecozone Eq MMS:** 

GEOLOGIC 02-FEB-2011 PAGE: 146

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 63 Date of Summary: 28-AUG-2003 First Sample Examined: 8980 Lease Number: G22574 Source of Paleo: OPERATOR **Borehole MD:** 13698 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 13697 **Drilling Operator: HUNT OIL COMPANY API Well Number:** 177034095300 **Rkb Elevation:** 104 Paleo Report Num: 1 of 1 **Sample Range:** 8980 - 13698 Water Depth: 50 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

<u> </u>		Paleo Top Description			Eco	<u>zone</u>
8980 / 8980	DEF	AT first sample examined	DI	F	AT	3
8981 / 8981	DEF	IN Middle Miocene (Serravallian) Cristellaria "I"	DI	F	AT	3
9070 / 9070	DEF	AT	DI	F	IN	2
9220 / 9220	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DI	F	IN	2
9520 / 9519	DEF	AT Turtle Grass fauna = Amphistegina Mound	DI	F	IN	2
9550 / 9549	DEF	AT	DI	F	AT	2
9790 / 9789	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DI	F	AT	2
9880 / 9879	DEF	AT	DI	F	IN	2
9910 / 9909	DEF	AT	DI	F	AT	2
10000 / 9999	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DI	F	AT	2
10060 / 10059	DEF	IN Middle Miocene (Langhian) Amphistegina "B"	DI	F	AT	2
10180 / 10179	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DI	F	IN	2
10360 / 10359	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DI	F	IN	2
10690 / 10689	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DI	F	IN	2
10750 / 10749	DEF	AT	DI	F	AT	2
10930 / 10929	DEF	AT	DI	F	IN	2
10960 / 10959	DEF	AT Middle Miocene (Langhian) Cibicides 38	DI	F	IN	2
11260 / 11259	DEF	AT local marker foram increase	DI	F	IN	2
11620 / 11619	DEF	AT local marker foram increase	DI	F	IN	2
11750 / 11749	DEF	AT	DI	F	AT	2
11860 / 11859	DEF	AT	DI	F	AT	2
11920 / 11919	DEF	AT local marker foram increase	DI	F	IN	2

GEOLOGIC

PAGE: 147

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 63 Date of Summary: 28-AUG-2003 First Sample Examined: 8980 Lease Number: G22574 Source of Paleo: OPERATOR **Borehole MD:** 13698 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 13697 **Drilling Operator: HUNT OIL COMPANY API Well Number:** 177034095300 **Rkb Elevation:** 104 Paleo Report Num: 1 of 1 **Sample Range:** 8980 - 13698 Water Depth: 50

Public Info Code: Y 20-JUL-2010 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description		Ec	<u>ozone</u>
11980 / 11979	DEF AT	DEF	AT	2
12100 / 12099	DEF AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	2
12400 / 12399	DEF AT local marker foram increase	DEF	AT	2
12940 / 12939	POS AT local marker foram increase	DEF	AT	2
13180 / 13179	DEF AT local marker foram increase	DEF	AT	2
13698 / 13697	DEF AT last sample examined	DEF	AT	2

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 148

14569

14456

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 83 Date of Summary: 23-MAR-2001 First Sample Examined: 0

Lease Number: G08641 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: 004 Paleo Done By: OPERATOR Borehole TVD:

API Well Number: 177034089500 Drilling Operator: HOUSTON EXPLORATION COMPANY Rkb Elevation: 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 60

Public Info Code: Y 05-JAN-2011 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
11111 / 11110	DEF AT Upper Miocene (Tortonian) Cibicides carstensi	DEF AT
12265 / 12264	DEF AT Middle Miocene (Serravallian) Textularia "W"	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 149

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 84 Date of Summary: 07-APR-2000 First Sample Examined: 0

Lease Number:G14356Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:18600

Well Name: 002 Paleo Done By: OPERATOR Borehole TVD: 18555

API Well Number: 177034087500 Drilling Operator: EL PASO PRODUCTION GOM INC Rkb Elevation: 102

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 58

Public Info Code: Y 29-JAN-2008 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
14515 / 14477	DEF AT Middle Miocene (Serravallian) Textularia "W"	DEF AT
18112 / 18071	DEF IN Middle Miocene (Serravallian) Cibicides opima	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 150

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 89	Date of Summary: 05-JUN-2001	First Sample Examined:	0
Lease Number: G00935	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9350
Well Name: 017	Paleo Done By: OPERATOR	Borehole TVD:	7615
API Well Number: 177034090600	Drilling Operator: CALPINE NATURAL GAS COMPANY	Rkb Elevation:	92
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	60
Public Info Code: Y 18-JAN-2011	Ecozone Ea MMS:	Paleo ID:	001

Remark: In=sand

<u> </u>	Paleo Top Description	<u>Ecozone</u>
6362 / 5751	DEF IN Lower Pliocene (Zanclian) Buliminella 1	DEF AT
7482 / 6446	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
8804 / 7266	DEF IN Upper Miocene (Tortonian) Discorbis 12	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 151

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 144 Date of Summary: 07-JUL-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G21070 **Borehole MD:** 11964 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 11964 **Drilling Operator: SENECA RESOURCES CORPORATION API Well Number:** 177034088200 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 85

Public Info Code: Y 22-JUN-2010 Ecozone Eq MMS:

Remark: In=sand

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7010 / 7010	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF A	·Τ
8990 / 8989	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF A	ιT
11704 / 11702	DEF	IN Upper Miocene (Tortonian) Robulus "E"	DEF A	·Τ

GEOLOGIC 02-FEB-2011

PAGE: 152

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 151	Date of Summary: 15-DEC-1999	First Sample Examined:	0
Lease Number: G05372	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9600
Well Name: 004	Paleo Done By: OPERATOR	Borehole TVD:	9599
<b>API Well Number:</b> 177034086900	Drilling Operator: VASTAR RESOURCES INC.	Rkb Elevation:	101
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	77
Public Info Code: Y 02-FEB-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5900 / 5900	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
6860 / 6860	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT
7280 / 7280	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
7850 / 7850	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT
8250 / 8250	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
9100 / 9099	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 153

0

8560

8509

96

75

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 151 Date of Summary: 30-APR-1998

Lease Number: G05372 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: B001 Paleo Done By: OPERATOR

API Well Number: 177034085300 Drilling Operator: NEWFIELD EXPLORATION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 02-FEB-2008 Ecozone Eq MMS:

Remark: In=sand

MD / TVD Paleo Top Description	Ecozone
--------------------------------	---------

7120 / 7119 DEF IN Lower Pliocene (Zanclian) Buliminella 1 DEF AT 7872 / 7862 DEF AT Upper Miocene (Messinian) Textularia "X" DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 154

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 151	Date of Summary: 12-JUL-2000	First Sample Examined:	0
Lease Number: G05372	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10100
Well Name: C001	Paleo Done By: OPERATOR	Borehole TVD:	10097
<b>API Well Number:</b> 177034087200	<b>Drilling Operator: NEWFIELD EXPLORATION COMPANY</b>	Rkb Elevation:	38
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	78
Public Info Code: Y 02-FEB-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u> </u>		Paleo Top Description		<u>Ecozone</u>
5595 / 5595	DEF IN	Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
7209 / 7209	DEF A	T Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
8466 / 8465	DEF A	T Upper Miocene (Messinian) Textularia "X"	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 155

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 261 Date of Summary: 22-MAR-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G00971 8168 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 6338

**Drilling Operator: BP AMERICA PRODUCTION COMPANY API Well Number: 177042000801 Rkb Elevation:** 92 160

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth:

**Ecozone Eq MMS:** 

Remark: In=sand

Public Info Code: Y 25-MAR-2010

MD / TVD **Paleo Top Description Ecozone** DEF IN Middle Pleistocene (Ionian) Trimosina "A" 4067 / 3345 DEF AT DEF IN Upper Pliocene (Gelasian) Lenticulina 1 DEF AT 6950 / 5446

GEOLOGIC 02-FEB-2011 PAGE: 156

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 269 Date of Summary: 25-AUG-2006 12560 First Sample Examined: Lease Number: G24807 Source of Paleo: OPERATOR 16859 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16846 Drilling Operator: REMINGTON OIL AND GAS CORPORATION **API Well Number:** 177044108201 **Rkb Elevation:** 125 Paleo Report Num: 1 of 1 **Sample Range:** 12560 - 16859 173 Water Depth: Public Info Code: Y 30-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ē	<u>Ecozone</u>
12560 / 12556	DEF	AT first sample examined	DEF	IN	3
12750 / 12746	DEF	AT maximum flooding surface	DEF	AT	3
12780 / 12776	POS	IN Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	4
12810 / 12806	DEF	AT	DEF	AT	3
13260 / 13255	DEF	AT Bathysiphon fauna	DEF	AT	3
13319 / 13314	DEF	AT maximum flooding surface	DEF	AT	3
13320 / 13315	DEF	AT Bathysiphon fauna	DEF	AT	3
13350 / 13345	DEF	AT	DEF	AT	4
13650 / 13645	DEF	AT Bathysiphon fauna	DEF	AT	4
14420 / 14414	DEF	AT Bathysiphon fauna	DEF	AT	4
14860 / 14854	DEF	AT Bathysiphon fauna	DEF	AT	4
15650 / 15643	DEF	AT Bathysiphon fauna	DEF	AT	4
15659 / 15651	DEF	AT maximum flooding surface	DEF	AT	4
15660 / 15652	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
15810 / 15802	DEF	AT	DEF	AT	4
16670 / 16658	DEF	AT Bathysiphon fauna	DEF	AT	4
16859 / 16846	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 157

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 313 5340 Date of Summary: 01-JUN-2006 First Sample Examined: Lease Number: G24815 Source of Paleo: OPERATOR 9771 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 9400 Drilling Operator: MARLIN COASTAL, LLC **API Well Number:** 177044108100 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 5340 - 9771 Water Depth: 187 Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Firefly Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
5340 / 5181	DEF	AT first sample examined	DEF	IN	1
5370 / 5209	DEF	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	IN	1
5400 / 5236	DEF	AT	DEF	AT	2
5580 / 5397	DEF	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	POS	ΑT	3
5639 / 5450	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	ΑT	3
5640 / 5451	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	3
5759 / 5560	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	ΑT	3
5760 / 5561	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	ΑT	3
5820 / 5617	DEF	AT local marker foram decrease	DEF	ΑT	3
5970 / 5757	DEF	AT sample gap top	DEF	ΑT	3
6090 / 5871	DEF	AT sample gap bottom	DEF	ΑT	2
6390 / 6159	DEF	AT	DEF	IN	1
6450 / 6217	DEF	AT Turtle Grass fauna = Amphistegina Mound	DEF	ΑT	1
6660 / 6418	DEF	AT	DEF	IN	1
6930 / 6678	DEF	AT	DEF	ΑT	1
7110 / 6852	DEF	AT local marker benthic foram increase	DEF	ΑT	1
7470 / 7197	DEF	AT	DEF	IN	1
7740 / 7454	DEF	AT local marker benthic foram increase	DEF	IN	1
7770 / 7482	DEF	AT local marker benthic foram increase	DEF	IN	1
7800 / 7511	DEF	AT pyrite	DEF	IN	1
7830 / 7539	DEF	AT	POS	ΑT	1
9059 / 8713	POS	AT out-of-place section	POS	ΑT	1

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 158

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 313	Date of Summary: 01-JUN-2006	First Sample Examined:	5340
Lease Number: G24815	Source of Paleo: OPERATOR	Borehole MD:	9771
Well Name: 001	Paleo Done By: APPLIED BIOSTRATIGRAPHIX	Borehole TVD:	9400
API Well Number: 177044108100	Drilling Operator: MARLIN COASTAL, LLC	Rkb Elevation:	82
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 5340 - 9771	Water Depth:	187
Public Info Code: Y 30-JUN-2008	Ecozone Eq MMS: Y	Paleo ID:	001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9060 / 8714	POS AT Upper Pliocene (Piacenzian) Globoquadrina altispira	POS AT 1
9660 / 9293	DEF AT local marker benthic foram increase	DEF AT 1
9750 / 9380	DEF AT last sample examined	DEF AT 1

GEOLOGIC 02-FEB-2011

159

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 313 Date of Summary: 02-JUN-2006 First Sample Examined: 5370 Lease Number: G24815 Source of Paleo: OPERATOR **Borehole MD:** 9771 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 9400 Drilling Operator: MARLIN COASTAL, LLC **API Well Number:** 177044108100 **Rkb Elevation:** 82 **Sample Range:** 5370 - 9780 Paleo Report Num: 2 of 2 187 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Firefly Prospect, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5370 / 5209	DEF AT first sample examined	DEF AT
5371 / 5209	DEF IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
5610 / 5424	DEF AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF AT
5970 / 5757	DEF AT sample gap top	DEF AT
6089 / 5871	DEF AT sample gap bottom	DEF AT
6090 / 5871	DEF AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF AT
6450 / 6217	POS AT Lower Pliocene (Zanclian) Discoaster variabilis	DEF AT
7020 / 6765	DEF AT reworked material	DEF AT
9780 /	DEF AT last sample examined	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 160

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 344	Date of Summary: 20-FEB-2001	First Sample Examined:	0
Lease Number: G17878	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13847
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	13442
<b>API Well Number:</b> 177044100400	Drilling Operator: REMINGTON OIL AND GAS CORPORATION	Rkb Elevation:	90
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	308
Public Info Code: Y 05-APR-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13470 / 13091	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT
13680 / 13292	DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF AT
13740 / 13350	DEF AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF AT

GEOLOGIC 02-FEB-2011

PAGE:

161

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 347 Date of Summary: 15-SEP-1999 First Sample Examined: 5510 Lease Number: G14383 Source of Paleo: OPERATOR 15814 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15600 **API Well Number: 177044099600 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation:** 100 Water Depth: 296 Paleo Report Num: 1 of 2 **Sample Range:** 5510 - 15814 Public Info Code: Y 05-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 8960=salt and mixed Miocene and Oligocene nannoflora, 9800=base of salt with mixed Eocene and Oligocene flora,

10250=probably marks base of jumbled or displaced section, nannospecies abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		<b>Ecozone</b>
5510 /	5507	DEF	AT first sample examined	DEF	AT
5540 /	5537	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
6020 /	6014	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7190 /	7183	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7279 /	7272	DEF	AT salt weld	DEF	AT
7280 /	7273	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
7459 /	7452	DEF	AT salt weld	DEF	AT
7460 /	7453	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
7760 /	7753	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
7850 /	7843	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
7880 /	7873	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
7900 /	7893	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
7940 /	7933	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
8300 /	8293	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
8480 /	8473	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
8630 /	8623	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
8840 /	8833	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
8960 /	8953	DEF	AT sait	DEF	AT
9799 /	9790	DEF	AT base of salt	DEF	AT
9800 /	9791	POS	IN out-of-place section	DEF	AT
9830 /	9821	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT

**GEOLOGIC** 02-FEB-2011

162

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 347 Date of Summary: 15-SEP-1999 First Sample Examined: 5510 Lease Number: G14383 Source of Paleo: OPERATOR **Borehole MD:** 15814 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15600 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177044099600 Rkb Elevation:** 100 Paleo Report Num: 1 of 2 **Sample Range:** 5510 - 15814 296 Water Depth:

Paleo ID: 002

Public Info Code: Y 05-SEP-2009 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10250 / 10234	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10760 / 10734	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11270 / 11226	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11390 / 11342	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11540 / 11486	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
11930 / 11861	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
11990 / 11918	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
12769 / 12665	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
12770 / 12666	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
13100 / 12981	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
13220 / 13096	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
13490 / 13355	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
15814 / 15600	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 163

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 347 Date of Summary: 17-SEP-1999 1700 First Sample Examined: Lease Number: G14383 Source of Paleo: OPERATOR 15814 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15600 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177044099600 **Rkb Elevation:** 100 Paleo Report Num: 2 of 2 **Sample Range:** 1700 - 15814 296 Water Depth: Public Info Code: Y 05-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	ozone
1700 / 1700	DEF	AT first sample examined	DEF	AT	2
2420 / 2420	DEF	AT	DEF	AT	3
2510 / 2510	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
4100 / 4100	DEF	AT Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	3
5780 / 5776	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	3
6920 / 6913	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	3
7190 / 7183	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	POS	AT	4
7399 / 7392	POS	AT out-of-place section	DEF	AT	5
7400 / 7393	POS	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
7849 / 7842	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
7850 / 7843	POS	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
7880 / 7873	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
7899 / 7892	POS	AT out-of-place section	DEF	AT	5
7939 / 7932	POS	AT out-of-place section	DEF	AT	6
7940 / 7933	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
8569 / 8562	POS	AT out-of-place section	DEF	AT	6
8570 / 8563	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
8750 / 8743	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
9020 / 9013	DEF	AT salt	DEF	AT	6
9770 / 9761	DEF	AT base of salt	DEF	AT	6
9830 / 9821	DEF	AT out-of-place section	DEF	AT	5
10429 / 10410	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5

GEOLOGIC

164

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:EC347Date of Summary:17-SEP-1999First Sample Examined:1700Lease Number:G14383Source of Paleo:OPERATORBorehole MD:15814Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:15600

API Well Number: 177044099600 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 100

Paleo Report Num: 2 of 2 Sample Range: 1700 - 15814 Water Depth: 296

Public Info Code: Y 05-SEP-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
10430 / 10411	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10520 / 10499	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
10760 / 10734	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
11270 / 11226	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
11299 / 11254	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	6
11300 / 11255	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
11480 / 11428	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
11630 / 11573	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
11960 / 11890	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
12170 / 12091	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
12680 / 12580	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
12769 / 12665	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
12770 / 12666	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
13190 / 13067	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
13430 / 13297	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	5
13610 / 13470	DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	5
13760 / 13614	DEF	AT Lower Miocene (Burdigalian) Gyroidina 8	DEF	AT	5
13820 / 13672	DEF	AT Lower Miocene (Burdigalian) Siphogenerina fredsmithi	DEF	AT	5
14090 / 13932	DEF	AT Lower Miocene (Aquitanian) Globigerinoides primordius	DEF	AT	5
14720 / 14544	DEF	AT local marker deep water fauna	DEF	AT	6
15139 / 14947	DEF	AT Lower Miocene (Aquitanian) Globigerina angulisuturalis	DEF	AT	6
15140 / 14948	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	6
15200 / 15006	POS	AT local marker foram decrease	DEF	AT	5
15260 / 15064	DEF	AT Bathysiphon fauna	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 165

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 347 Date of Summary: 17-SEP-1999 First Sample Examined: 1700 Lease Number: G14383 Source of Paleo: OPERATOR **Borehole MD:** 15814 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15600 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177044099600 Rkb Elevation:** 100 Paleo Report Num: 2 of 2 **Sample Range:** 1700 - 15814 296 Water Depth: Public Info Code: Y 05-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
15710 / 15499	DEF	AT local marker foram decrease	DEF	AT	5
15770 / 15558	POS	AT Upper Oligocene (Chattian) Bolivina perca	DEF	AT	5
15800 / 15587	POS	AT Upper Oligocene (Chattian) Marginulina idiomorpha	DEF	AT	5
15814 / 15600	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

166

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 347 Date of Summary: 22-OCT-1999 First Sample Examined: 9125 Lease Number: G14383 Source of Paleo: OPERATOR 14313 **Borehole MD:** 12532 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177044099601 **Rkb Elevation:** 100 **Sample Range:** 9125 - 14320 Paleo Report Num: 1 of 2 298 Water Depth: Public Info Code: Y 06-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9125 / 9118	DEF AT first sample examined	DEF AT
9126 / 9119	DEF IN salt	DEF AT
9520 / 9507	DEF AT base of salt	DEF AT 4
9700 / 9676	DEF IN out-of-place section	DEF AT 4
9970 / 9914	POS AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT 4
10000 / 9940	POS AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF AT 4
11470 / 10849	POS AT Lower Pliocene (Zanclian) Cibicides marsi	DEF AT 4
11500 / 10864	DEF AT Arenaceous fauna (local marker)	DEF AT 4
12760 / 11505	POS AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF AT 4
13430 / 11911	DEF AT Eggerella sp. (local marker)	DEF AT 4
14320 /	DEF AT last sample examined	DEF AT 4

GEOLOGIC 02-FEB-2011

167

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 347 Date of Summary: 22-OCT-1999 9125 First Sample Examined: Lease Number: G14383 Source of Paleo: OPERATOR 14313 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12532 **Drilling Operator: ANADARKO PETROLEUM CORPORATION API Well Number:** 177044099601 **Rkb Elevation:** 100 Paleo Report Num: 2 of 2 **Sample Range:** 9125 - 14320 298 Water Depth: Public Info Code: Y 06-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, the interval from 10254 to 12800 is based on sidewall cores, nannospecies abundance and diversity chart available, see

report for details

MD/TVD		Paleo Top Description		<u>Ecozone</u>
9125 / 9118	DEF	AT first sample examined	DEF	AT
9126 / 9119	DEF	IN salt	DEF	AT
12800 / 11528	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12970 / 11627	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
14320 /	DEF	AT last sample examined	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

Paleo for Public Release (Date Specific)

GEOLOGIC 02-FEB-2011

168

001

PAGE:

Paleo ID:

LF OF MEXICO REGION

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: FC 3

Area Block: EC 369 Date of Summary: 09-MAY-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G21585 **Borehole MD:** 6142 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 5459 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP **API Well Number:** 177044102101 **Rkb Elevation:** 115 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 338 Water Depth:

Public Info Code: Y 19-OCT-2010

Remark: In=sand

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4930 / 4477	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF A	AT
5587 / 5010	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF A	AT

**Ecozone Eq MMS:** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 169 PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 369 Date of Summary: 14-NOV-2001

First Sample Examined: 0

Lease Number: G21585

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

7926 **Borehole MD:** 

Well Name: A002

Paleo Done By: OPERATOR

**Borehole TVD:** 5500

**API Well Number: 177044102300** 

Drilling Operator: WESTPORT OIL AND GAS COMPANY LP

**Rkb Elevation:** 91

Paleo Report Num: 1 of 1

0 - 0 Sample Range:

Water Depth: 344

Public Info Code: Y 19-OCT-2010

**Ecozone Eq MMS:** 

Paleo ID: 001

Remark: In=sand

MD / TVD **Paleo Top Description Ecozone** 

DEF IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B" 4681 / 3971 DEF IN Lower Pleistocene (Calabrian) Angulogerina "B" 7110 / 5099

DEF AT DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 170

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 379 Date of Summary: 27-MAR-2003 First Sample Examined: 9990 Source of Paleo: OPERATOR Lease Number: G12856 **Borehole MD:** 11419 Well Name: 003 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 9441 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177044103801 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 9990 - 11430 437 Water Depth: Public Info Code: Y 20-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		Eco	ozone
9990 / 8161	DEF	AT first sample examined	DEF	AT	2
10290 / 8424	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
10320 / 8451	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
10470 / 8585	DEF	AT Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	POS	AT	4
10500 / 8612	DEF	AT faunal change (no faunal increase)	DEF	AT	3
10530 / 8639	POS	AT local marker foram increase	POS	AT	4
10590 / 8692	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	POS	AT	4
10619 / 8718	DEF	AT foram flood	DEF	AT	5
10620 / 8719	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
10650 / 8746	DEF	AT faunal change (no faunal increase)	POS	AT	4
10710 / 8800	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10830 / 8908	DEF	AT local marker deep water fauna	DEF	AT	5
10980 / 9044	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11010 / 9071	DEF	AT faunal change (no faunal increase)	DEF	AT	3
11130 / 9179	DEF	AT faunal change (no faunal increase)	POS	AT	4
11160 / 9206	DEF	AT faunal change (no faunal increase)	DEF	AT	3
11190 / 9233	DEF	AT faunal change (no faunal increase)	DEF	IN	3
11310 / 9342	DEF	AT faunal change (no faunal increase)	POS	AT	4
11370 / 9396	DEF	AT faunal change (no faunal increase)	DEF	IN	3
11430 /	DEF	AT last sample examined	DEF	IN	3

GEOLOGIC 02-FEB-2011

171

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 379 9960 Date of Summary: 22-APR-2003 First Sample Examined: Lease Number: G12856 Source of Paleo: OPERATOR 11419 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9441 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177044103801 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 9960 - 11100 Water Depth: 437 Public Info Code: Y 20-APR-2010 Ecozone Eq MMS: N Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9960 / 8135	DEF	AT first sample examined	DEF	AT
10290 / 8424	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10920 / 8990	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11100 / 9152	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 172

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 379 Date of Summary: 27-MAR-2003 First Sample Examined: 11400 Lease Number: G12856 Source of Paleo: OPERATOR **Borehole MD:** 14618 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12397 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177044103802 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 11400 - 14610 437 Water Depth: Public Info Code: Y 20-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
11400 / 9428	DEF	AT first sample examined	DEF	IN	3
11500 / 9520	DEF	AT faunal change (no faunal increase)	POS	AT	4
11530 / 9547	DEF	IN Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
11550 / 9566	DEF	AT faunal change (no faunal increase)	POS	AT	4
11670 / 9675	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11730 / 9730	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11760 / 9757	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
11940 / 9921	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
11970 / 9948	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12030 / 10003	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	4
12150 / 10112	DEF	IN Upper Pliocene (Gelasian) Globorotalia exilis	DEF	AT	4
12270 / 10222	DEF	AT local marker planktic foram increase	DEF	AT	5
12480 / 10415	POS	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	5
12600 / 10524	DEF	AT faunal change (no faunal increase)	DEF	AT	4
12690 / 10607	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
12750 / 10662	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	5
12780 / 10689	DEF	AT faunal change (no faunal increase)	DEF	AT	4
12810 / 10716	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12840 / 10744	DEF	AT faunal change (no faunal increase)	DEF	AT	4
12960 / 10854	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
12990 / 10881	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13080 / 10963	DEF	AT faunal change (no faunal increase)	DEF	AT	5

GEOLOGIC 02-FEB-2011

173

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 379 Date of Summary: 27-MAR-2003 First Sample Examined: 11400 Lease Number: G12856 Source of Paleo: OPERATOR **Borehole MD:** 14618 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12397 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177044103802 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 11400 - 14610 437 Water Depth:

Public Info Code: Y 20-APR-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
13110 / 10990	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
13140 / 11018	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	5
13200 / 11073	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13230 / 11100	DEF	AT faunal change (no faunal increase)	DEF	AT	5
13290 / 11155	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13410 / 11265	DEF	AT local marker planktic foram increase	DEF	AT	4
13470 / 11319	DEF	AT faunal change (no faunal increase)	DEF	AT	5
13500 / 11347	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13590 / 11429	DEF	AT local marker planktic foram increase	DEF	AT	4
13620 / 11457	DEF	AT faunal change (no faunal increase)	DEF	AT	5
13770 / 11598	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13830 / 11654	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	4
13860 / 11682	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14040 / 11852	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14280 / 12078	POS	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	IN	3
14340 / 12134	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14430 / 12219	POS	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	4
14600 / 12379	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

174

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 379 Date of Summary: 22-APR-2003 First Sample Examined: 11880 Lease Number: G12856 Source of Paleo: OPERATOR 14618 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12397 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177044103802 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 11880 - 14610 437 Water Depth: Public Info Code: Y 20-APR-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	<u>P:</u>	aleo Top Description		<b>Ecozone</b>
11880 / 9866	DEF AT fir	rst sample examined	DEF	AT
11940 / 9921	DEF IN U	pper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
12030 / 10003	DEF AT U	pper Pliocene (Gelasian) Discoaster surculus	DEF	AT
12120 / 10085	DEF AT L	ower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
13500 / 11347	DEF AT sa	ample gap top	DEF	AT
13800 / 11626	DEF AT sa	ample gap bottom	DEF	AT
14610 / 12389	DEF AT la	st sample examined	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 175

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 381	Date of Summary: 16-JUL-1998	First Sample Examined:	0
Lease Number: G15161	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13970
Well Name: A003	Paleo Done By: OPERATOR	Borehole TVD:	13554
API Well Number: 177044099002	Drilling Operator: TEXACO EXPLORATION AND PROD	Rkb Elevation:	133
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	446
Public Info Code: Y 05-AUG-2008	Ecozone Eg MMS:	Paleo ID:	001

#### Remark:

<u> </u>		Paleo Top Description		<u>Ecozone</u>
4820 / 4820	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF A	·Τ
8969 / 8961	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF A	·Τ
9760 / 9711	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF A	·Τ
10950 / 10831	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF A	τ

GEOLOGIC 02-FEB-2011

176

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 26-OCT-1998 5000 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 11906 **Borehole MD:** Well Name: A004 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 8676 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099200 **Rkb Elevation:** 133 **Sample Range:** 5000 - 11750 Paleo Report Num: 1 of 2 Water Depth: 446 Public Info Code: Y 09-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Barite South Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		<b>Ecozone</b>
5000 /	4388	DEF	AT first sample examined	DEF	AT
5001 /	4388	DEF	IN Upper Pleistocene (Ionian) Gephyrocapsa caribbeanica (flood)	DEF	AT
5900 /	4941	DEF	AT local marker floral increase	DEF	AT
8180 /	6358	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
9020 /	6878	POS	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
9440 /	7142	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
11750 /	8579	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

177

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 5000 Date of Summary: 02-NOV-1998 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 11906 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: A004 **Borehole TVD:** 8676 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099200 **Rkb Elevation:** 133 Paleo Report Num: 2 of 2 **Sample Range:** 5000 - 11720 Water Depth: 446 Public Info Code: Y 09-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Barite South Prospect, foram species abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		Ecoz	<u>zone</u>
5000 /	4388	DEF	AT first sample examined	DEF	IN	1
5001 /	4388	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	IN	1
5390 /	4624	POS	AT local marker foram increase	DEF	AT	2
5870 /	4922	DEF	AT faunal change (no faunal increase)	DEF	IN	2
5900 /	4941	DEF	AT local marker foram increase	DEF	IN	2
6260 /	5164	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	IN	2
6410 /	5253	DEF	AT faunal change (no faunal increase)	DEF	AT	2
6440 /	5271	DEF	AT local marker foram increase	DEF	AT	2
7430 /	5890	POS	AT local marker foram increase	DEF	AT	2
7610 /	6004	DEF	AT local marker foram increase	DEF	AT	2
8900 /	6803	DEF	AT pyrite	DEF	AT	2
9170 /	6972	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	2
9260 /	7029	DEF	AT local marker benthic foram increase	DEF	IN	2
9380 /	7104	DEF	AT local marker foram increase	DEF	IN	2
9440 /	7142	DEF	AT local marker foram increase	DEF	IN	2
10400 /	7741	DEF	AT	DEF	AT	2
10640 /	7891	DEF	AT local marker benthic foram increase	DEF	AT	2
10910 /	8061	DEF	AT	DEF	IN	1
10940 /	8079	DEF	AT local marker benthic foram increase	DEF	IN	1
11420 /	8375	DEF	AT local marker foram increase	DEF	AT	2
11600 /	8486	DEF	AT local marker benthic foram increase	DEF	AT	2
11720 /	8560	DEF	AT last sample examined	DEF	IN	1

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 178

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 26-OCT-1998 11750 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 14570 **Borehole MD:** Well Name: A004 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10373 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099201 **Rkb Elevation:** 133 Paleo Report Num: 1 of 2 **Sample Range:** 11750 - 14540 Water Depth: 446 Public Info Code: Y 09-NOV-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Barite South Prospect, no diagnostic coccolith markers observed

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
11780 / 8608	DEF AT first sample examined	DEF AT
14540 / 10354	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

179

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 02-NOV-1998 11750 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 14570 **Borehole MD:** Well Name: A004 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10373 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099201 **Rkb Elevation:** 133 Paleo Report Num: 2 of 2 **Sample Range:** 11750 - 14540 446 Water Depth: Public Info Code: Y 09-NOV-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Barite South Prospect

MD / TVD	Paleo Top Description	<u>Ecozone</u>	<u> </u>
11750 / 8589	DEF AT first sample examined	DEF IN 1	
11900 / 8683	DEF AT	DEF AT 2	
12500 / 9059	DEF AT	DEF IN 2	
12530 / 9078	POS AT local marker foram increase	DEF IN 2	
13430 / 9647	DEF AT	DEF AT 2	
14540 / 10354	DEF AT last sample examined	DEF AT 2	

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 180

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 19-OCT-1998

First Sample Examined: 0 **Borehole MD:** 11186

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15161

Paleo Done By: OPERATOR **Borehole TVD:** 9240

**Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099202

**Rkb Elevation:** 133

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 446 Public Info Code: Y 14-NOV-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

Well Name: A004

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Middle Pleistocene (Ionian) Trimosina "A" DEF AT 5849 / 5056

GEOLOGIC

181

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 10-FEB-1999 First Sample Examined: 10010 Lease Number: G15161 Source of Paleo: OPERATOR 14461 **Borehole MD:** 12589 Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099300 **Rkb Elevation:** 133 Paleo Report Num: 1 of 2 **Sample Range:** 10010 - 14210 446 Water Depth: Public Info Code: Y 22-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Sidetrack 1 report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
10010 / 9592	DEF	AT first sample examined	DEF	AT
10740 / 10093	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10980 / 10253	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11340 / 10495	DEF	AT local marker floral increase	DEF	AT
11690 / 10730	DEF	AT local marker floral increase	DEF	AT
14210 / 12417	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

182

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 25-FEB-1999 First Sample Examined: 10010 Lease Number: G15161 Source of Paleo: OPERATOR 14461 **Borehole MD:** 12589 Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099300 **Rkb Elevation:** 133 Paleo Report Num: 2 of 2 **Sample Range:** 10010 - 14461 446 Water Depth: Public Info Code: Y 22-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Sidetrack 1 report, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	cozone
10010 / 9592	DEF	AT first sample examined	POS	AT	4
10040 / 9613	DEF	AT	DEF	AT	4
10100 / 9655	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
10740 / 10093	DEF	AT local marker benthic foram increase	DEF	AT	4
10830 / 10152	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
10860 / 10172	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	4
10950 / 10233	DEF	AT	DEF	IN	4
11490 / 10597	DEF	AT local marker foram increase	DEF	IN	4
11540 / 10630	DEF	AT siltstone	DEF	IN	4
11990 / 10927	DEF	AT	DEF	AT	4
12410 / 11203	DEF	AT siltstone	DEF	AT	4
12440 / 11223	DEF	AT	DEF	AT	4
12590 / 11322	DEF	AT	DEF	IN	4
12860 / 11499	DEF	AT	DEF	AT	4
13550 / 11962	DEF	AT drilling material	POS	AT	4
13670 / 12045	DEF	AT siltstone	POS	AT	4
14180 / 12397	DEF	AT	DEF	IN	4
14461 / 12589	DEF	AT last sample examined	DEF	IN	4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 183

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Public Info Code: Y 21-JAN-2009

Area Block:EC381Date of Summary:05-JAN-1999First Sample Examined:0Lease Number:G15161Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:15100Well Name:A005Paleo Done By:OPERATORBorehole TVD:13014Pulled Number:177044000202Pulling Operator:TEXACO EXPLICITION AND PROD

API Well Number: 177044099302 Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation: 133

Paleo Report Num: 1 of 3 Sample Range: 0 - 0 Water Depth: 446

Remark: Depths by log correlation, per Rome Lytton (Texaco) phone call

**Ecozone Eq MMS:** 

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
10680 / 10070	DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF AT
12422 / 11205	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 184

003

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 10-FEB-1999 14450 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 15100 **Borehole MD:** Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD:** 13014 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099302 **Rkb Elevation:** 133 Water Depth: 446

Paleo Report Num: 2 of 3 **Sample Range:** 14450 - 15110

Public Info Code: Y 21-JAN-2009 **Ecozone Eq MMS:** 

Remark: Calcareous nannofossil report, no diagnostic coccolith markers noted

MD/IVD	Paleo Top Description	<u>Ecozone</u>
14450 / 12568	DEF AT first sample examined	DEF AT
15110 /	DEF AT last sample examined	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 185

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 25-FEB-1999 14450 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 15100 **Borehole MD:** Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD:** 13014 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099302 **Rkb Elevation:** 133 Paleo Report Num: 3 of 3 **Sample Range:** 14450 - 15110 Water Depth: 446 Public Info Code: Y 21-JAN-2009 Ecozone Eq MMS: N Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD/IVD	Paleo Top Description	<u>Ecozone</u>
14450 / 12568	DEF AT first sample examined	DEF AT
15100 / 13014	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 186

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	EC 381	Date of Summary:	10-FEB-1999	First Sample Examined:	15160
Lease Number: (	G15161	Source of Paleo:	OPERATOR	Borehole MD:	16952
Well Name:	A005	Paleo Done By:	OPERATOR	Borehole TVD:	14319
API Well Number: 1	177044099303	<b>Drilling Operator:</b>	TEXACO EXPLORATION AND PROD	Rkb Elevation:	133
Paleo Report Num:	1 of 2	Sample Range:	15160 - 16900	Water Depth:	446
Public Info Code: \	Y 17-FEB-2009	Ecozone Eq MMS:		Paleo ID:	003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>		Paleo Top Description		<u>Ecozone</u>
15160 / 13059	DE	AT first sample examined	DEF	AT
15340 / 13181	DE	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16900 / 14281	DE	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

187

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 25-FEB-1999 15160 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 16952 **Borehole MD:** Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD:** 14319 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099303 **Rkb Elevation:** 133 Paleo Report Num: 2 of 2 **Sample Range:** 15160 - 16930 446 Water Depth: Public Info Code: Y 17-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
15160 / 13059	DEF	AT first sample examined	POS	AT	4
15310 / 13161	DEF	IN transported inner shelf facies	POS	AT	4
15339 / 13180	DEF	AT transported outer shelf facies	DEF	AT	4
15340 / 13181	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
16750 / 14170	DEF	AT local marker foram increase	DEF	AT	4
16870 / 14259	DEF	AT	POS	AT	4
16930 / 14303	DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 188

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EC 381	Date of Summary: 10-FEB-1999	First Sample Examined:	16960
Lease Number: G15161	Source of Paleo: OPERATOR	Borehole MD:	17581
Well Name: A005	Paleo Done By: OPERATOR	Borehole TVD:	14733
API Well Number: 177044099304	Drilling Operator: TEXACO EXPLORATION AND PROD	Rkb Elevation:	133
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 16960 - 17582	Water Depth:	446
Public Info Code: Y 03-MAR-2009	Ecozone Ea MMS:	Paleo ID:	003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>		Paleo Top Description		<u>Ecozone</u>
16960 / 14297	DEF	AT first sample examined	DEF	AT
17140 / 14421	POS	AT local marker floral increase	DEF	AT
17380 / 14590	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17558 / 14717	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 189

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EC 381 Date of Summary: 25-FEB-1999 16960 First Sample Examined: Lease Number: G15161 Source of Paleo: OPERATOR 17581 **Borehole MD:** 14733 Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177044099304 **Rkb Elevation:** 133 Paleo Report Num: 2 of 2 **Sample Range:** 16960 - 17582 446 Water Depth: Public Info Code: Y 03-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: No diagnostic foram markers noted, foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
16960 / 14297	DEF AT first sample examined	POS AT 4
17050 / 14359	DEF AT	DEF AT 4
17582 /	DEF AT last sample examined	DEF AT 4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 190

0

12408

12105

100

15

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 28 Date of Summary: 03-APR-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A002 Paleo Done By: OPERATOR

API Well Number: 177094127100 Drilling Operator: JUNIPER ENERGY LP Rkb Elevation:

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 10-APR-2010 Ecozone Eq MMS:

Remark: In=sand

Lease Number: G05479

MD / TVD Paleo Top Description Ecozone

12099 / 11819 DEF IN Middle Miocene (Serravallian) Textularia "W" DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 191

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El Date of Summary: 10-MAY-2004 First Sample Examined: 5000 Lease Number: G23854 Source of Paleo: OPERATOR **Borehole MD:** 17595 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16163 **Drilling Operator: WESTPORT RESOURCES CORPORATION API Well Number:** 177094140300 **Rkb Elevation:** 104 Paleo Report Num: 1 of 1 **Sample Range:** 5000 - 17490 Water Depth: 15 Public Info Code: Y 02-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u> </u>	cozone
5000 / 5000	DEF	AT first sample examined	DEF	AT	1
7340 / 7340	POS	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	POS	AT	2
9140 / 9140	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	2
9230 / 9230	DEF	AT faunal change (no faunal increase)	POS	ΑT	3
9860 / 9860	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	3
10400 / 10400	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	ΑT	3
10520 / 10520	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
10640 / 10639	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	4
11800 / 11796	DEF	AT Middle Miocene (Serravallian) Robulus 5 / 55	DEF	AT	4
11860 / 11855	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	4
13010 / 12928	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	4
13070 / 12977	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
13160 / 13049	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
13880 / 13583	DEF	AT sample gap top	POS	ΑT	5
13999 / 13668	DEF	AT sample gap bottom	DEF	ΑT	5
14000 / 13669	POS	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	ΑT	5
14330 / 13905	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	ΑT	5
14360 / 13927	DEF	AT faunal change (no faunal increase)	DEF	ΑT	6
14670 / 14148	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14910 / 14311	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
15150 / 14466	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	ΑT	4
15840 / 14951	DEF	AT faunal change (no faunal increase)	DEF	AT	5

17490 / 16087

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 192

DEF AT

4

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 5000 29 Date of Summary: 10-MAY-2004 First Sample Examined: Lease Number: G23854 Source of Paleo: OPERATOR 17595 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16163 **Drilling Operator: WESTPORT RESOURCES CORPORATION API Well Number: 177094140300 Rkb Elevation:** 104 Paleo Report Num: 1 of 1 **Sample Range:** 5000 - 17490 Water Depth: 15 Public Info Code: Y 02-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVDPaleo Top DescriptionEcozone16500 / 15417DEF AT faunal change (no faunal increase)DEF AT 417190 / 15889DEF AT Middle Miocene (Langhian) Robulus "L" / 43DEF AT 4

DEF AT last sample examined

GEOLOGIC 02-FEB-2011

193

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El Date of Summary: 23-FEB-2000 First Sample Examined: 11010 Lease Number: G15239 Source of Paleo: OPERATOR **Borehole MD:** 15067 Paleo Done By: PALEO-DATA, INC. 15062 Well Name: 002 **Borehole TVD: Drilling Operator: COCKRELL OIL CORPORATION API Well Number:** 177094126901 **Rkb Elevation:** 128 Paleo Report Num: 1 of 1 **Sample Range:** 11010 - 15067 10 Water Depth: Public Info Code: Y 20-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 13430=rare Gyroidina scalata

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
11010 / 11008	DEF	AT first sample examined	DEF	AT	3
11011 / 11009	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	3
11930 / 11926	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
12470 / 12466	DEF	AT	DEF	AT	4
13430 / 13425	POS	AT local marker (general)	DEF	AT	4
14060 / 14055	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
14840 / 14835	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
15067 / 15062	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

194

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El Date of Summary: 29-DEC-1999 First Sample Examined: 7000 Lease Number: G15239 Source of Paleo: OPERATOR **Borehole MD:** 15876 Paleo Done By: PALEO-DATA, INC. Well Name: A001 **Borehole TVD:** 15869 **Drilling Operator: COCKRELL OIL CORPORATION API Well Number:** 177094126200 **Rkb Elevation:** 134 Paleo Report Num: 1 of 1 **Sample Range:** 7000 - 15880 9 Water Depth: Public Info Code: Y 18-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
7000 / 6999	DEF	AT first sample examined	DEF	AT	1
8290 / 8289	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	2
9010 / 9009	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	2
10180 / 10179	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	2
10990 / 10989	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	2
11050 / 11049	DEF	AT	DEF	AT	3
12070 / 12068	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
12880 / 12878	DEF	AT	DEF	AT	4
14470 / 14466	DEF	AT Upper Miocene (Tortonian) Cibicides inflata	DEF	AT	4
14740 / 14736	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
15880 /	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC

195

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El Date of Summary: 15-SEP-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G19784 **Borehole MD:** 11840 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 11801 **Drilling Operator:** EQUITABLE PRODUCTION COMPANY **API Well Number:** 177094125800 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 17 Water Depth: Public Info Code: Y 20-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7720 / 7720	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
8240 / 8240	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
9608 / 9594	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
10260 / 10230	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
11154 / 11117	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

196

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 53	Date of Summary: 03-DEC-1998	First Sample Examined:	0
Lease Number: 00479	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14737
Well Name: C001	Paleo Done By: OPERATOR	Borehole TVD:	14504
API Well Number: 177094121101	Drilling Operator: FOREST OIL CORPORATION	Rkb Elevation:	108
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	20
Public Info Code: Y 28-AUG-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD/TVD		Paleo Top Description		<u>Ecozone</u>
10285 / 10279	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
11390 / 11343	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
12850 / 12734	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT
14050 / 13849	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 197

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 53	Date of Summary: 29-DEC-1998	First Sample Examined:	0
Lease Number: 00479	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	12896
Well Name: C002	Paleo Done By: OPERATOR	Borehole TVD:	12825
API Well Number: 177094122600	Drilling Operator: FOREST OIL CORPORATION	Rkb Elevation:	106
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	20
Public Info Code: Y 04-DEC-2008	Ecozone Eg MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
10650 / 10647	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
11292 / 11284	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
12612 / 12552	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT
12753 / 12688	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 198

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 71 Date of Summary: 12-NOV-1998 First Sample Examined: 0 10610 **Borehole MD:**

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G12906

Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 10609

**API Well Number: 177094123000 Drilling Operator: PETROBRAS AMERICA INC Rkb Elevation:** 128

0 - 0 22 Paleo Report Num: 1 of 1 Sample Range: Water Depth: Public Info Code: Y 19-NOV-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** DEF AT Upper Pliocene (Gelasian) Lenticulina 1 4700 / 4700 DEF AT 9350 / 9349 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 199

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 71 Date of Summary: 13-JAN-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G12906 **Borehole MD:** 14076 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 13023 **Drilling Operator: PETROBRAS AMERICA INC API Well Number:** 177094109401 **Rkb Elevation:** 126 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 22 Water Depth:

Public Info Code: Y 16-DEC-2008 Ecozone Eq MMS:

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9256 / 9249	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
10560 / 10501	DEF AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT

GEOLOGIC 02-FEB-2011

200

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 113B Date of Summary: 22-OCT-2004 19830 First Sample Examined: Lease Number: G22662 Source of Paleo: OPERATOR 22361 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22115 Drilling Operator: LLOG EXPLORATION OFFSHORE LLC **API Well Number:** 177094141201 **Rkb Elevation:** 106 Paleo Report Num: 1 of 1 **Sample Range:** 19830 - 22320 Water Depth: 53 Public Info Code: Y 01-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	<u>zone</u>
19830 / 19825	DEF	AT first sample examined	DEF	AT	3
19831 / 19826	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
20280 / 20273	DEF	AT faunal change (no faunal increase)	DEF	AT	4
20369 / 20360	DEF	AT reworked material	DEF	AT	4
20370 / 20361	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
21510 / 21434	DEF	AT faunal change (no faunal increase)	DEF	AT	3
22320 / 22084	DEF	AT last sample examined	DEF	AT	3

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 201

19725

38

**Borehole MD:** 

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 118 Date of Summary: 28-DEC-1999 First Sample Examined: 0

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15242

Well Name: 002 Paleo Done By: OPERATOR

**Borehole TVD:** 17710 **Drilling Operator:** ANADARKO E&P COMPANY LP **API Well Number:** 177094122800 **Rkb Elevation:** 91

0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Public Info Code: Y 10-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Miocene (Tortonian) Cyclammina 3 DEF AT 16315 / 15718

GEOLOGIC 02-FEB-2011 PAGE: 202

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 119 Date of Summary: 01-SEP-2000 7850 First Sample Examined: Lease Number: 00049 Source of Paleo: OPERATOR 15103 **Borehole MD:** Well Name: 037 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 15090 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 177094129000 **Rkb Elevation:** 100 **Sample Range:** 7850 - 15100 Paleo Report Num: 1 of 1 Water Depth: 35 Public Info Code: Y 29-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			Ecoz	<u>one</u>
7850 / 7848	DEF	AT first sample examined	DEF	- A	Т	1
7880 / 7878	DEF	AT local marker benthic foram increase	DEF	- A	Т	1
8900 / 8898	DEF	AT shell fragments	DEF	- A	Т	1
9020 / 9018	DEF	AT local marker (general)	DEF	- A	Т	1
9200 / 9198	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	- A	Т	1
9710 / 9708	DEF	AT shell fragments	DEF	- A	Т	1
9950 / 9948	DEF	AT local marker benthic foram increase	DEF	- A	Т	1
10040 /10038	DEF	AT pyrite	DEF	- A	Т	1
10190 / 10188	DEF	AT Arenaceous fauna (local marker)	DEF	- A	Т	1
10400 / 10398	DEF	AT shell fragments	DEF	- A	Т	1
10640 / 10638	POS	AT reworked material	DEF	- A	Т	1
10880 / 10878	DEF	AT pyrite	DEF	- A	Т	1
10969 / 10967	POS	AT unconformity	DEF	- A	Т	4
10970 / 10968	DEF	AT Cyclammina cancellata (local marker)	DEF	- A	Т	4
11030 /11028	DEF	AT Arenaceous fauna (local marker)	DEF	- A	Т	4
11059 / 11057	DEF	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	- A	Т	4
11060 / 11058	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	- A	Т	4
11090 / 11088	DEF	AT local marker foram increase	DEF	- A	Т	4
11180 / 11178	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	- A	Т	4
11240 / 11238	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	= IN	1	3
11420 / 11418	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	- A	Т	3
11480 / 11478	DEF	AT pyrite	DEF	- A	Т	3

GEOLOGIC 02-FEB-2011 PAGE: 203

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 119 Date of Summary: 01-SEP-2000 First Sample Examined: 7850 Lease Number: 00049 Source of Paleo: OPERATOR **Borehole MD:** 15103 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 037 **Borehole TVD:** 15090 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 177094129000 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 7850 - 15100 Water Depth: 35

Public Info Code: Y 29-SEP-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>Ecozone</u>
11600 / 11598	DEF	AT Arenaceous fauna (local marker)	DEF	AT	3
11660 / 11658	DEF	AT sand	DEF	IN	2
11845 / 11843	DEF	AT sample gap top	DEF	IN	2
11990 / 11988	DEF	AT sample gap bottom	DEF	AT	2
12140 / 12138	DEF	AT local marker benthic foram increase	DEF	AT	2
12500 / 12497	DEF	AT	DEF	IN	1
12650 / 12647	DEF	AT	DEF	ΑT	2
12680 / 12677	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	2
12770 / 12767	DEF	AT	DEF	IN	1
12920 / 12917	DEF	AT	DEF	ΑT	2
13010 / 13007	DEF	AT sand	DEF	ΑT	2
13070 / 13066	DEF	AT sand	DEF	IN	1
13190 / 13186	DEF	AT	DEF	ΑT	2
13250 / 13246	DEF	AT local marker benthic foram increase	DEF	IN	2
13279 / 13275	POS	AT unconformity	POS	ΑT	3
13280 / 13276	DEF	AT local marker foram increase	POS	ΑT	3
13310 / 13306	DEF	AT local marker benthic foram increase	DEF	IN	3
13370 / 13366	DEF	AT local marker deep water fauna	DEF	IN	3
13550 / 13546	DEF	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	IN	3
13760 / 13755	DEF	AT	DEF	AT	3
13820 / 13815	DEF	AT Eggerella 3 (local marker)	DEF	AT	3
13848 / 13843	POS	AT unconformity	DEF	IN	3
13849 / 13844	DEF	AT local marker planktic foram increase	DEF	IN	3
13850 / 13845	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	IN	3

GEOLOGIC 02-FEB-2011

204

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 119 Date of Summary: 01-SEP-2000 First Sample Examined: 7850 Lease Number: 00049 Source of Paleo: OPERATOR **Borehole MD:** 15103 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 037 **Borehole TVD:** 15090 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 177094129000 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 7850 - 15100 Water Depth: 35

Public Info Code: Y 29-SEP-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
13940 / 13935	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	3
14150 / 14144	DEF	AT	DEF	AT	3
14330 / 14323	DEF	AT local marker benthic foram increase	DEF	AT	3
14390 / 14383	DEF	AT Eggerella sp. (local marker)	DEF	AT	3
14540 / 14532	DEF	AT local marker planktic foram increase	DEF	AT	3
14750 / 14740	DEF	AT Upper Miocene (Tortonian) Discorbis 12	POS	IN	3
14809 / 14799	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
14810 / 14800	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	POS	IN	3
14870 / 14859	DEF	AT sand	DEF	AT	3
14900 / 14889	DEF	AT pyrite	DEF	AT	3
15100 / 15087	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011 PAGE: 205

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 119 Date of Summary: 01-SEP-2000 12100 First Sample Examined: Lease Number: 00049 Source of Paleo: OPERATOR 16250 **Borehole MD:** Well Name: 037 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 15553 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 177094129001 **Rkb Elevation:** 100 **Sample Range:** 12100 - 16250 Paleo Report Num: 1 of 1 Water Depth: 35 Public Info Code: Y 10-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Inverness Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
12100 / 12097	DEF	AT first sample examined	DEF	AT	
12101 / 12098	DEF	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	
12340 / 12334	DEF	AT local marker foram increase	DEF	AT	2
12520 / 12509	DEF	AT local marker benthic foram increase	DEF	ΑT	2
12610 / 12595	DEF	AT pyrite	DEF	ΑT	2
12670 / 12652	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	2
12790 / 12765	DEF	AT	DEF	IN	1
12850 / 12821	DEF	AT pyrite	DEF	IN	1
13269 / 13194	POS	AT unconformity	DEF	ΑT	3
13270 / 13195	DEF	AT local marker benthic foram increase	DEF	ΑT	3
13300 / 13220	DEF	AT local marker planktic foram increase	DEF	ΑT	3
13390 / 13296	DEF	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	ΑT	3
13450 / 13346	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	3
13480 / 13371	DEF	AT sand	DEF	IN	2
13540 / 13421	DEF	AT	DEF	ΑT	2
13690 / 13540	DEF	AT pyrite	DEF	ΑT	2
13750 / 13588	DEF	AT local marker benthic foram increase	POS	ΑT	2
14380 / 14084	DEF	AT Arenaceous fauna (local marker)	POS	ΑT	2
14500 / 14178	DEF	AT local marker benthic foram increase	POS	ΑT	2
14619 / 14271	POS	AT unconformity	POS	ΑT	2
14620 / 14272	DEF	AT pyrite	POS	ΑT	2
14649 / 14295	DEF	AT local marker planktic foram increase	DEF	ΑT	3

GEOLOGIC 02-FEB-2011 PAGE: 206

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 119 Date of Summary: 01-SEP-2000 First Sample Examined: 12100 Lease Number: 00049 Source of Paleo: OPERATOR **Borehole MD:** 16250 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 037 **Borehole TVD:** 15553 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 177094129001 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 12100 - 16250 Water Depth: 35

Public Info Code: Y 10-OCT-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	<u> cozone</u>
14650 / 14296	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
14770 / 14390	DEF	AT pyrite	DEF	AT	3
14860 / 14460	DEF	AT pyrite	DEF	AT	3
14980 / 14554	DEF	AT Cyclammina sp. (local marker)	DEF	AT	3
15100 / 14649	DEF	AT	POS	AT	3
15310 / 14815	DEF	AT pyrite	POS	AT	3
15490 / 14957	DEF	AT pyrite	POS	AT	3
15520 / 14980	DEF	AT sample gap top	POS	AT	3
15700 / 15122	DEF	AT sample gap bottom	POS	AT	3
16058 / 15402	POS	AT unconformity	DEF	IN	3
16059 / 15403	DEF	AT local marker planktic foram increase	DEF	IN	3
16060 / 15404	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	3
16120 / 15451	DEF	AT Upper Miocene (Tortonian) Textularia "G"	DEF	IN	3
16150 / 15474	DEF	AT local marker planktic foram increase	DEF	IN	3
16210 / 15522	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
16250 / 15553	DEF	AT last sample examined	DEF	IN	3

GEOLOGIC 02-FEB-2011

207

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 143	Date of Summary: 13-JAN-1998	First Sample Examined:	0
Lease Number: G17973	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15904
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD:	15687
API Well Number: 177094116600	<b>Drilling Operator: MURPHY EXPLORATION &amp; PRODUCTIO</b>	Rkb Elevation:	78
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	40
Public Info Code: Y 04-JAN-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5100 / 5100	DEF	IN Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT
8120 / 8120	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
9800 / 9800	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT
11480 / 11479	POS	AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT
13010 / 13009	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
13250 / 13249	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
13340 / 13339	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
14480 / 14440	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT

GEOLOGIC 02-FEB-2011

208

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 152 19860 Date of Summary: 13-MAR-2008 First Sample Examined: Lease Number: G27107 Source of Paleo: OPERATOR 21391 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 21368 Drilling Operator: LLOG EXPLORATION OFFSHORE LLC **API Well Number:** 177094108701 **Rkb Elevation:** 115 **Sample Range:** 19860 - 21170 72 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 22-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
19860 /	DEF AT first sample examined	DEF AT 4
20060 /	DEF AT Upper Miocene (Tortonian) Minylitha convallis	DEF AT 4
20209 /	POS AT maximum flooding surface	DEF AT 4
20210 /	POS AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT 4
21170 /	DEF AT last sample examined	DEF AT 4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 209

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

0

13668

12451

88

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 182 Date of Summary: 30-JAN-2001 First Sample Examined:

Lease Number: G04452 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A005 Paleo Done By: OPERATOR

API Well Number: 177094062501 Drilling Operator: NEWFIELD EXPLORATION COMPANY Rkb Elevation: 110

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 21-DEC-2010 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

13456 / 12262 DEF AT Upper Miocene (Tortonian) Textularia 6 DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 210

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 184	Date of Summary: 05-NOV-1998	First Sample Examined: 8950
Alea block. Li 104	Date of Summary. 05-NOV-1990	First Sample Examined. 0930
Lease Number: G05498	Source of Paleo: OPERATOR	Borehole MD: 13373
Well Name: A005	Paleo Done By: PALEO-DATA, INC.	Borehole TVD: 13250
API Well Number: 177094121800	Drilling Operator: TOTAL E&P USA INC	Rkb Elevation: 130
Paleo Report Num: 1 of 1	Sample Range: 8950 - 13320	Water Depth: 88
Public Info Code: Y 23-NOV-2008	Ecozone Ea MMS: Y	Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>	
8950 / 8949	DEF AT first sample examined	DEF AT 2	
9510 / 9505	DEF AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF AT 3	
10890 / 10812	POS AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT 3	
11940 / 11827	POS AT Upper Miocene (Messinian) Textularia "X"	DEF AT 3	
13320 / 13194	DEF AT last sample examined	DEF AT 3	

GEOLOGIC 02-FEB-2011

211

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 184	Date of Summary: 30-SEP-1998	First Sample Examined:	0
Lease Number: G17981	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13770
Well Name: A004	Paleo Done By: OPERATOR	Borehole TVD:	13305
API Well Number: 177094121500	Drilling Operator: TOTAL E&P USA INC	Rkb Elevation:	130
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	88
Public Info Code: Y 12-AUG-2008	Ecozone Ea MMS: N	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
4830 / 4828	DEF	AT	DEF	AT	2
5160 / 5158	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	2
6390 / 6388	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	2
10560 / 10343	POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	2
10950 / 10698	DEF	AT	DEF	AT	3
11970 / 11622	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	3
12480 / 12089	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	3

GEOLOGIC

212

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 193 4500 Date of Summary: 24-JAN-2001 First Sample Examined: Lease Number: 00572 Source of Paleo: OPERATOR **Borehole MD:** 17173 Well Name: C001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17165 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177094129900 **Rkb Elevation:** 96 Paleo Report Num: 1 of 2 **Sample Range:** 4500 - 17173 87 Water Depth: Public Info Code: Y 29-JAN-2011 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
4500 / 4500	DEF	AT first sample examined	POS	AT	2
4501 / 4501	DEF	AT cement	POS	AT	2
5110 / 5110	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	2
5380 / 5380	DEF	AT	DEF	AT	3
5440 / 5440	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	3
7460 / 7460	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	3
9560 / 9560	POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	3
10520 / 10520	POS	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	3
10910 / 10910	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	3
11810 / 11809	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	3
14780 / 14777	DEF	AT	DEF	AT	4
17173 / 17165	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC

02-FEB-2011 PAGE: 213

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 193 Date of Summary: 06-FEB-2001 First Sample Examined: 10010 Lease Number: 00572 Source of Paleo: OPERATOR **Borehole MD:** 17173 Well Name: C001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17165 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177094129900 **Rkb Elevation:** 96 Paleo Report Num: 2 of 2 **Sample Range:** 10010 - 17173 87 Water Depth: Public Info Code: Y 29-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Descript	<u>ion</u>		<b>Ecozone</b>
10010 / 10010	DEF AT first sample examine	ed	DEF	AT
10340 / 10340	POS IN Lower Pliocene (Zar	clian) Reticulofenestra pseudoumbilica	DEF	AT
10940 / 10940	POS AT Lower Pliocene (Zar	clian) Ceratolithus acutus	DEF	AT
14780 / 14777	DEF AT Upper Miocene (Mes	ssinian) Discoaster quinqueramus	DEF	AT
16820 / 16813	DEF AT Upper Miocene (Mes	ssinian) Discoaster berggrenii "B"	DEF	AT
17173 / 17165	DEF AT last sample examine	d	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 214

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 202 Date of Summary: 01-DEC-1998

First Sample Examined: 0

Lease Number: G05499

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

**Borehole MD:** 12996

Well Name: 004

Paleo Done By: OPERATOR

**Borehole TVD:** 12198

**API Well Number:** 177094122100

**Drilling Operator: NEWFIELD EXPLORATION COMPANY** 

85

Paleo Report Num: 1 of 1

**Rkb Elevation:** Water Depth: 118

Public Info Code: Y 13-NOV-2008

0 - 0 Sample Range:

**Ecozone Eq MMS:** 

Paleo ID:

Remark:

MD / TVD

**Paleo Top Description** 

**Ecozone** 

001

11728 / 10967

DEF AT Upper Miocene (Tortonian) Cyclammina 3

DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 215

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 202 Date of Summary: 14-DEC-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR

API Well Number: 177094123300 Drilling Operator: NEWFIELD EXPLORATION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 20-JAN-2009 Ecozone Eq MMS:

First Sample Examined: 0
Borehole MD: 13945
Borehole TVD: 13107
Rkb Elevation: 108
Water Depth: 109

Paleo ID:

Remark:

Lease Number: G05499

MD / TVD Paleo Top Description Ecozone

12037 / 11810 DEF AT Cyclammina cancellata (local marker) DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 216

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

0

13511

12150

101

107

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 202 Date of Summary: 06-MAY-1999 First Sample Examined:

Lease Number: G05499 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A002 Paleo Done By: OPERATOR

API Well Number: 177094124101 Drilling Operator: NEWFIELD EXPLORATION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 03-MAY-2009 Ecozone Eq MMS:

Remark:

MD / TVD Paleo Top Description Ecozone

13244 / 11883 DEF AT Cyclammina cancellata (local marker) DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 217

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 202 Date of Summary: 23-MAR-2000

First Sample Examined: 0 **Borehole MD:** 13913

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G05499

Paleo Done By: OPERATOR **Borehole TVD:** 12400

**API Well Number:** 177094123100

**Drilling Operator: NEWFIELD EXPLORATION COMPANY Rkb Elevation:** 85 0 - 0 118

Paleo Report Num: 1 of 1 Sample Range: Water Depth: Public Info Code: Y 29-DEC-2008 **Ecozone Eq MMS:** Paleo ID:

Remark:

Well Name: B002

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Cyclammina cancellata (local marker) DEF AT 12393 / 11199

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 218

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 205	Date of Summary: 03-JUN-2001	First Sample Examined:	0
Lease Number: 00806	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	16300
Well Name: F002	Paleo Done By: OPERATOR	Borehole TVD:	13134
API Well Number: 177094027302	Drilling Operator: BURLINGTON RESOURCES OFFSHORE INC	Rkb Elevation:	95
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	105
Public Info Code: Y 22-DEC-2008	Ecozone Eg MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
15050 / 12435	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
15500 / 12707	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
15740 / 12847	DEF AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 219

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 224	Date of Summary: 09-APR-1999	First Sample Examined:	0
Lease Number: G05504	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15392
Well Name: A009	Paleo Done By: OPERATOR	Borehole TVD:	14528
API Well Number: 177094121900	<b>Drilling Operator:</b> BP AMERICA PRODUCTION COMPANY	Rkb Elevation:	116
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	134
Public Info Code: Y 21-NOV-2008	Ecozone Eg MMS:	Paleo ID:	001

Remark: In=sand

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10390 / 9933	DEF	IN Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
12210 / 11715	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	AT
13998 / 13446	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT
14430 / 13833	DEF	AT Upper Miocene (Tortonian) Textularia 6	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

220

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 227	Date of Summary: 28-JAN-1998	First Sample Examined:	0
Lease Number: 00809	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9020
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	9012
API Well Number: 177094123800	Drilling Operator: PRIME NATURAL RESOURCES INC	Rkb Elevation:	101
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	125
Public Info Code: Y 23-JAN-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD/TVD		Paleo Top Description		<b>Ecozone</b>
5970 / 5970	DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	AT
6315 / 6315	DEF	AT Upper Pliocene (Piacenzian) Textularia 1	DEF	AT
7610 / 7609	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
8800 / 8794	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 221

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 227 Date of Summary: 05-JAN-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: B001 Paleo Done By: OPERATOR

**Drilling Operator: NEWFIELD EXPLORATION COMPANY API Well Number:** 177094130000

0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Public Info Code: Y 31-DEC-2010 **Ecozone Eq MMS:**  First Sample Examined: 0

9890 **Borehole MD:** 

**Borehole TVD:** 9606

**Rkb Elevation:** 

Paleo ID:

82 Water Depth:

121 001

**Ecozone** 

Remark:

Lease Number: 00809

MD / TVD **Paleo Top Description** 

DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira 7910 / 7808 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 222

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 237 Date of Summary: 16-JUN-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G00981 **Borehole MD:** 9140 Paleo Done By: OPERATOR Well Name: K007 **Borehole TVD:** 7943 **Drilling Operator: CHEVRON USA INC API Well Number:** 177094124601 **Rkb Elevation:** 120 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 139 Water Depth: Public Info Code: Y 31-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6900 / 6037	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT
8700 / 7555	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 223

**Borehole MD:** 

0

11978

11100

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 243 Date of Summary: 06-AUG-1998 First Sample Examined:

Lease Number: G02898 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD:

API Well Number: 177094038301 Drilling Operator: STONE PETROLEUM CORPORATION Rkb Elevation: 130

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 148

Public Info Code: Y 13-JUL-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

11200 / 10323 DEF AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J" DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

224

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 243	Date of Summary: 31-MAR-1999	First Sample Examined:	0
Lease Number: G02899	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14640
Well Name: D001	Paleo Done By: OPERATOR	Borehole TVD:	13404
API Well Number: 177094122700	Drilling Operator: STONE ENERGY CORPORATION	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	150
Public Info Code: Y 08-JAN-2009	Ecozone Eg MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9770 / 9769	DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	AT
10310 / 10304	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT
13700 / 12836	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT
14630 / 13398	DEF	AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 225

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 256 11000 Date of Summary: 07-JUL-2005 First Sample Examined: Lease Number: G02102 Source of Paleo: OPERATOR **Borehole MD:** 19502 Well Name: A008 Paleo Done By: OPERATOR **Borehole TVD:** 19208 **Drilling Operator: POGO PRODUCING COMPANY API Well Number:** 177094142701 **Rkb Elevation:** 136 Paleo Report Num: 1 of 1 **Sample Range:** 11000 - 19502 137 Water Depth: Public Info Code: Y 13-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ec	<u>ozone</u>
11000 / 10923	DEF	AT first sample examined	POS	IN	3
11660 / 11536	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT	5
11720 / 11592	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
12110 / 11953	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
12530 / 12344	DEF	AT local marker foram increase	DEF	AT	5
12560 / 12372	DEF	AT Lower Pliocene (Zanclian) Discoaster challengeri	DEF	AT	5
12710 / 12512	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	POS	AT	4
12830 / 12624	DEF	AT	DEF	AT	5
12890 / 12680	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	5
13220 / 12989	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
13550 / 13300	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	5
13730 / 13472	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	5
14120 / 13851	DEF	AT unconformity	DEF	IN	5
14600 / 14324	DEF	AT sample gap top	POS	IN	5
14659 / 14382	DEF	AT sample gap bottom	DEF	IN	5
14660 / 14383	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	IN	5
14899 / 14620	DEF	AT transported shelf fauna	DEF	AT	5
14900 / 14621	DEF	AT Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	AT	5
15200 / 14920	POS	IN Upper Miocene (Tortonian) Robulus "E"	DEF	IN	5
15590 / 15310	DEF	AT local marker foram increase	POS	AT	6
15650 / 15370	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	6
15860 / 15580	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6

19502 / 19214

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE:

Paleo ID:

POS AT

226

001

6

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> 11000 Area Block: El 256 Date of Summary: 07-JUL-2005 First Sample Examined: Lease Number: G02102 Source of Paleo: OPERATOR 19502 **Borehole MD:** Well Name: A008 Paleo Done By: OPERATOR **Borehole TVD:** 19208 API Well Number: 177094142701 **Drilling Operator: POGO PRODUCING COMPANY Rkb Elevation:** 136

> API Well Number: 177094142701 Drilling Operator: POGO PRODUCING COMPANY Rkb Elevation: 136
>
> Paleo Report Num: 1 of 1 Sample Range: 11000 - 19502 Water Depth: 137

Public Info Code: Y 13-MAY-2008 Ecozone Eq MMS: Y

AT last sample examined

MD / TVD **Paleo Top Description Ecozone** 15890 / 15610 DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT 6 POS AT 16991 / 16711 DEF AT cement 6 DEF AT ----17090 / 16810 DEF AT 6 17299 / 17019 DEF AT Upper Miocene (Tortonian) Discoaster bollii DEF AT 6 AT Upper Miocene (Tortonian) Globoquadrina dehiscens DEF AT 17300 / 17020 6 17390 / 17110 DEF AT Upper Miocene (Tortonian) Cibicides crebbsi DEF AT 6 AT unconformity DEF AT 17900 / 17620 DEF 6 DEF IN Upper Miocene (Tortonian) Textularia "L" DEF AT 6 18020 / 17740 18080 / 17800 DEF IN Upper Miocene (Tortonian) Cibicides carstensi DEF AT 6 AT Middle Miocene (Serravallian) Globorotalia fohsi lobata DEF AT 6 18140 / 17860 DEF AT local marker foram decrease POS AT 6 18230 / 17950 DEF AT anhydrite POS AT 6 18440 / 18160 AT Middle Eocene (Lutetian) Discoaster Iodoensis POS AT 6 19070 / 18786

DEF

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 227

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 267 Date of Summary: 04-OCT-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: 00812 **Borehole MD:** 12533 Well Name: 1008 Paleo Done By: OPERATOR **Borehole TVD:** 10681 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 177104152300 **Rkb Elevation:** 111 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 176 Water Depth: Public Info Code: Y 11-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9740 / 8961	DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
11010 / 9748	DEF AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF AT
11900 / 10261	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 228

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 309 Date of Summary: 09-AUG-1999 First Sample Examined: 11910 Lease Number: G02608 Source of Paleo: OPERATOR **Borehole MD:** 14918 Well Name: J004 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 8515 **Drilling Operator:** XTO OFFSHORE INC **API Well Number: 177104150600 Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 11910 - 14910 220 Water Depth: Public Info Code: Y 30-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
11910 / 6891	DEF	AT first sample examined	DEF	IN	1
11931 / 6900	DEF	AT	DEF	AT	0
11940 / 6903	DEF	AT	DEF	AT	2
12120 / 6976	DEF	AT local marker foram increase	DEF	AT	2
12270 / 7043	DEF	AT	DEF	AT	0
12300 / 7056	DEF	AT	DEF	AT	2
12330 / 7069	DEF	AT	DEF	AT	0
12540 / 7162	DEF	AT	DEF	IN	1
12570 / 7176	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	IN	1
12600 / 7191	DEF	AT	DEF	AT	0
12780 / 7283	DEF	AT	DEF	AT	2
13050 / 7433	DEF	AT	DEF	AT	0
13080 / 7449	DEF	AT	DEF	AT	2
13140 / 7482	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	2
13320 / 7586	DEF	AT	DEF	AT	0
13380 / 7620	DEF	AT	DEF	IN	1
13440 / 7656	DEF	AT	DEF	AT	2
13470 / 7673	DEF	AT	DEF	AT	0
13620 / 7762	DEF	AT	DEF	IN	1
13650 / 7780	DEF	AT	DEF	AT	2
13740 / 7833	DEF	AT local marker foram increase	DEF	AT	2
13830 / 7886	DEF	IN Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	3

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

229

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 309 Date of Summary: 09-AUG-1999 First Sample Examined: 11910 Lease Number: G02608 Source of Paleo: OPERATOR 14918 **Borehole MD:** Well Name: J004 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 8515 Drilling Operator: XTO OFFSHORE INC **API Well Number: 177104150600 Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 11910 - 14910 220 Water Depth: Public Info Code: Y 30-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Ecozo	<u>one</u>
13890 / 7921	DEF	AT	DEF	AT	2
13920 / 7938	DEF	AT local marker foram increase	DEF	AT	3
13950 / 7956	DEF	AT	DEF	AT	2
14040 / 8007	DEF	AT	DEF	IN	2
14220 / 8109	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	2
14310 / 8161	DEF	AT local marker foram increase	DEF	AT	3
14370 / 8196	DEF	AT	DEF	IN	2
14460 / 8249	DEF	AT transported inner shelf facies	POS	AT	1
14520 / 8285	DEF	AT	DEF	AT	2
14730 / 8407	DEF	AT transported inner shelf facies	POS	AT	1
14760 / 8424	DEF	AT	DEF	AT	2
14880 / 8493	DEF	IN Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	3
14910 / 8510	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011 PAGE: 230

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 313 Date of Summary: 25-SEP-2000 First Sample Examined: 5085 Lease Number: G02608 Source of Paleo: OPERATOR **Borehole MD:** 9326 Well Name: C006 Paleo Done By: OPERATOR **Borehole TVD:** 7466 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177104133102 **Rkb Elevation:** 107 Paleo Report Num: 1 of 1 **Sample Range:** 5085 - 8015 227 Water Depth: Public Info Code: Y 02-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		Eco <sub>2</sub>	<u>zone</u>
5085 /	5066	DEF	AT first sample examined	DEF	AT	2
5175 /	5149	DEF	AT pyrite	DEF	IN	1
5510 /	5440	DEF	AT local marker foram increase	DEF	IN	1
5690 /	5581	DEF	AT local marker foram increase	DEF	IN	1
6090 /	5830	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	2
6180 /	5876	DEF	AT	DEF	IN	1
6275 /	5924	DEF	AT	DEF	AT	2
6325 /	5950	DEF	AT sand	DEF	IN	1
7129 /	6353	DEF	AT pyrite	DEF	IN	1
7130 /	6353	DEF	AT local marker foram increase	DEF	IN	1
7445 /	6510	DEF	AT local marker foram increase	DEF	IN	2
7535 /	6553	DEF	AT	DEF	AT	2
7930 /	6746	DEF	AT local marker foram increase	DEF	IN	2
7955 /	6759	DEF	AT	DEF	AT	2
8015 /	6789	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011

231

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 327 Date of Summary: 14-MAY-1998 First Sample Examined: 2000 12229 Lease Number: G02910 Source of Paleo: OPERATOR **Borehole MD:** Well Name: A015 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11804 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177104148300 **Rkb Elevation:** 102 Paleo Report Num: 1 of 1 **Sample Range:** 2000 - 12230 262 Water Depth: Public Info Code: Y 01-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecc	<u>ozone</u>
2000 / 1992	DEF	AT first sample examined	DEF	AT	3
2240 / 2221	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
3110 / 3022	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	4
4280 / 4100	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
8000 / 7583	POS	AT Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	4
8300 / 7879	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
10340 / 9915	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	4
10430 / 10005	DEF	AT	DEF	AT	5
11000 / 10575	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
11030 / 10605	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
12140 / 11715	DEF	AT Upper Pliocene (Piacenzian) Saracenaria "H"	DEF	AT	5
12230 /	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

232

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 338 Date of Summary: 09-OCT-2000 First Sample Examined: 7250 10322 Lease Number: G02118 Source of Paleo: OPERATOR **Borehole MD:** 8139 Well Name: A006 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177104010403 **Rkb Elevation:** 77 Paleo Report Num: 1 of 1 **Sample Range:** 7250 - 9080 259 Water Depth: Public Info Code: Y 04-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		Ecoz	zone
7250 /	5848	DEF	AT first sample examined	DEF	AT	3
7251 /	5848	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	3
7252 /	5849	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	3
7400 /	5929	DEF	AT Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	DEF	IN	3
7499 /	5986	DEF	AT pyrite	DEF	AT	3
7500 /	5986	DEF	AT local marker foram increase	DEF	AT	3
7600 /	6045	DEF	AT local marker foram decrease	DEF	IN	2
8000 /	6293	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	2
8050 /	6325	DEF	AT limestone	DEF	AT	3
8100 /	6358	DEF	AT local marker benthic foram increase	DEF	AT	3
8150 /	6391	DEF	AT pyrite	DEF	AT	3
8250 /	6457	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	3
8450 /	6595	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	3
8550 /	6666	DEF	AT local marker foram decrease	DEF	IN	2
8750 /	6809	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	2
8800 /	6846	DEF	AT local marker benthic foram increase	DEF	AT	3
8850 /	6884	DEF	AT local marker benthic foram increase	DEF	IN	2
8900 /	6922	DEF	AT local marker benthic foram increase	DEF	IN	2
9050 /	7040	DEF	AT faunal change (no faunal increase)	DEF	IN	2
9080 /	7064	DEF	AT last sample examined	DEF	IN	2

GEOLOGIC 02-FEB-2011 PAGE: 233

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 338 Date of Summary: 17-AUG-2000 First Sample Examined: 6100 Source of Paleo: OPERATOR Lease Number: G02118 **Borehole MD:** 9114 Well Name: A007 Paleo Done By: OPERATOR **Borehole TVD:** 8046 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number: 177104010601 Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 6100 - 8800 250 Water Depth: Public Info Code: Y 30-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description			<b>Ecozone</b>
6100 / 5270	DEF	AT first sample examined	DEF	AT	2
6101 / 5271	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT.	2
6325 / 5466	POS	AT local marker foram increase	DEF	- IN	2
6460 / 5587	DEF	AT local marker foram decrease	DEF	AT	2
6550 / 5669	DEF	AT faunal change (no faunal increase)	DEF	: IN	2
6595 / 5710	DEF	AT local marker foram increase	DEF	: IN	2
6730 / 5835	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	- IN	2
6775 / 5876	DEF	AT faunal change (no faunal increase)	DEF	AT	3
6950 / 6037	DEF	AT local marker (general)	DEF	AT	2
7000 / 6083	DEF	AT local marker foram decrease	DEF	AT	2
7090 / 6166	DEF	AT local marker benthic foram increase	DEF	AT	2
7225 / 6290	DEF	AT local marker foram decrease	DEF	- IN	2
7945 / 6956	DEF	AT local marker foram increase	DEF	AT	3
8080 / 7078	DEF	AT shell fragments	DEF	AT	3
8125 / 7119	DEF	AT local marker foram decrease	DEF	AT	3
8215 / 7200	DEF	AT	DEF	: IN	2
8395 / 7366	DEF	AT local marker foram increase	DEF	- IN	2
8440 / 7408	DEF	AT local marker foram decrease	DEF	- IN	2
8485 / 7450	DEF	AT faunal change (no faunal increase)	DEF	- AT	2
8620 / 7577	DEF	AT local marker benthic foram increase	DEF	- AT	2
8710 / 7661	DEF	AT local marker (general)	DEF	- IN	2
8755 / 7704	DEF	AT local marker foram decrease	DEF	- IN	2

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 234

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 338 Date of Summary: 17-AUG-2000 First Sample Examined: 6100

Lease Number:G02118Source of Paleo:OPERATORBorehole MD:9114Well Name:A007Paleo Done By:OPERATORBorehole TVD:8046

API Well Number: 177104010601 Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation: 100

Paleo Report Num: 1 of 1 Sample Range: 6100 - 8800 Water Depth: 250

Public Info Code:Y 30-AUG-2010Ecozone Eq MMS:YPaleo ID:001

MD / TVDPaleo Top DescriptionEcozone8800 / 7747DEF AT last sample examinedDEF IN 2

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 235

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 339 Date of Summary: 25-NOV-1997 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G02118 **Borehole MD:** 7057 Well Name: B012 Paleo Done By: OPERATOR **Borehole TVD:** 5792 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177104034305 **Rkb Elevation:** 92 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 269 Water Depth:

Public Info Code: Y 16-JAN-2008 Ecozone Eq MMS:

Remark:

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
2650 / 2524	DEF AT Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
5020 / 4295	DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF AT

GEOLOGIC 02-FEB-2011

236

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 339 Date of Summary: 20-MAY-1998 First Sample Examined: 10130 Source of Paleo: OPERATOR Lease Number: G02318 **Borehole MD:** 10854 Well Name: C017 7334 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177104148801 **Rkb Elevation:** 126 Paleo Report Num: 1 of 2 **Sample Range:** 10130 - 10860 268 Water Depth: Public Info Code: Y 10-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		Eco	ozone
10130 / 6704	DEF	AT first sample examined	DEF	AT	2
10280 / 6829	DEF	AT local marker foram increase	DEF	AT	2
10550 / 7063	DEF	AT local marker foram increase	DEF	AT	2
10580 / 7090	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	3
10770 / 7259	DEF	AT faunal change (no faunal increase)	DEF	AT	2
10860 /	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC

02-FEB-2011 PAGE: 237

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 339 Date of Summary: 01-JUN-1998 10280 First Sample Examined: Lease Number: G02318 Source of Paleo: OPERATOR **Borehole MD:** 10854 7334 Well Name: C017 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177104148801 **Rkb Elevation:** 126 Paleo Report Num: 2 of 2 **Sample Range:** 10280 - 10580 268 Water Depth: Public Info Code: Y 10-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description	Ecoz	zone
10280 / 6829	DEF	AT first sample examined	DEF AT	
10281 / 6830	DEF	AT reworked material	DEF AT	
10579 / 7089	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT	
10580 / 7090	DEF	AT last sample examined	DEF AT	

GEOLOGIC 02-FEB-2011

238

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 339 Date of Summary: 30-APR-1998 First Sample Examined: 7020 Source of Paleo: OPERATOR Lease Number: G02318 **Borehole MD:** 8788 Well Name: C019 Paleo Done By: OPERATOR **Borehole TVD:** 7198 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177104149201 **Rkb Elevation:** 126 Paleo Report Num: 1 of 1 **Sample Range:** 7020 - 8790 268 Water Depth: Public Info Code: Y 28-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
7020 / 5508	DEF	AT first sample examined	DEF	AT	3
7030 / 5517	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	3
7180 / 5654	DEF	AT faunal change (no faunal increase)	DEF	IN	2
7330 / 5794	DEF	AT local marker foram increase	DEF	IN	2
8580 / 6996	DEF	AT drilling material	DEF	IN	2
8710 / 7123	DEF	AT siltstone	DEF	IN	2
8760 / 7171	DEF	AT local marker foram increase	DEF	IN	2
8790 / 7200	DEF	AT last sample examined	DEF	IN	2

GEOLOGIC 02-FEB-2011

239

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 1500 Date of Summary: 14-JUN-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 15518 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15518 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149900 **Rkb Elevation:** 94 Paleo Report Num: 1 of 2 **Sample Range:** 1500 - 15510 327 Water Depth: Public Info Code: Y 10-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ţ	<u>Ecozone</u>
1500 / 1500	DEF	AT first sample examined	DEF	AT	2
1890 / 1890	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	ΑT	4
2250 / 2250	DEF	AT	DEF	ΑT	3
4320 / 4320	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	ΑT	3
5370 / 5370	DEF	AT	DEF	ΑT	4
6750 / 6750	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
11280 / 11280	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	ΑT	4
11640 / 11640	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
11700 / 11699	DEF	AT	DEF	ΑT	5
12150 / 12149	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
12300 / 12299	DEF	AT	DEF	ΑT	6
12420 / 12419	POS	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	ΑT	6
12540 / 12539	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
13260 / 13257	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
14040 / 14035	DEF	AT	DEF	ΑT	5
14310 / 14304	DEF	AT	DEF	ΑT	4
15510 / 15503	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 240

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 1500 Date of Summary: 14-JUN-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 15518 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15518 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149900 **Rkb Elevation:** 94 Paleo Report Num: 2 of 2 **Sample Range:** 1500 - 15510 327 Water Depth: Public Info Code: Y 10-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD.	/ TVD		Paleo Top Description		<b>Ecozone</b>
1500 /	/ 1500	DEF	AT first sample examined	DEF	AT
2220 /	/ 2220	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
2400 /	/ 2400	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
5400 /	5400	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
6720 /	6720	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
6840 /	6840	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8940 /	/ 8940	DEF	AT sample gap top	DEF	AT
9030 /	9030	DEF	AT sample gap bottom	DEF	AT
10140 /	/10140	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11100 /	/11100	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11610	/11610	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11640 /	/11640	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12060 /	/12059	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12090 /	/12089	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12240 /	/12239	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
12360 /	/12359	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
15480 /	/15473	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15510 /	/15503	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

241

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 346	Date of Summary: 14-JUN-1999	First Sample Examined:	11020
Lease Number: G14482	Source of Paleo: OPERATOR	Borehole MD:	14145
Well Name: 003	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	13133
API Well Number: 177104149901	Drilling Operator: ANADARKO PETROLEUM CORPORATION	Rkb Elevation:	95
Paleo Report Num: 1 of 2	Sample Range: 11020 - 14110	Water Depth:	325
Public Info Code: Y 28-JUN-2009	Ecozone Eg MMS: Y	Paleo ID:	002

#### Remark:

MD / TVD		Paleo Top Description		Ecoz	one
11020 / 11020	DEF	AT first sample examined	DEF	AT	4
11230 / 11229	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
11650 / 11627	DEF	AT	DEF	AT	5
11770 / 11731	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	5
12550 / 12279	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
13029 / 12538	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
13030 / 12538	POS	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
14110 / 13115	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 242

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 14-JUN-1999 First Sample Examined: 11020 Lease Number: G14482 Source of Paleo: OPERATOR **Borehole MD:** 14145 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13133 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149901 **Rkb Elevation:** 95 Paleo Report Num: 2 of 2 **Sample Range:** 11020 - 14110 325 Water Depth: Public Info Code: Y 28-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11020 / 11020	DEF	AT first sample examined	DEF	AT
11080 / 11080	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11560 / 11545	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11650 / 11627	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11920 / 11855	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
13030 / 12538	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
13090 / 12570	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
14110 / 13115	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

243

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 11020 Date of Summary: 16-JUL-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 16511 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14435 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149902 **Rkb Elevation:** 94 Paleo Report Num: 1 of 2 Sample Range: 11020 - 16511 327 Water Depth: Public Info Code: Y 05-AUG-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
11020 / 11020	DEF	AT first sample examined	DEF	AT
11080 / 11079	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11560 / 11541	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11590 / 11569	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11830 / 11780	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11920 / 11855	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
12220 / 12088	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12221 / 12089	POS	AT salt weld	DEF	AT
12250 / 12109	POS	IN salt weld	DEF	AT
12251 / 12110	DEF	AT out-of-place section	DEF	AT
12640 / 12349	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
15880 / 14064	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
16060 / 14167	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
16511 / 14435	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

244

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 19-JUL-1999 First Sample Examined: 11020 Lease Number: G14482 Source of Paleo: OPERATOR 16511 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14435 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149902 **Rkb Elevation:** 94 Paleo Report Num: 2 of 2 Sample Range: 11020 - 16511 327 Water Depth: Public Info Code: Y 05-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
11020 / 11020	DEF	AT first sample examined	DEF	AT	4
11110 / 11109	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
11559 / 11540	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
11560 / 11541	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
11860 / 11805	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12040 / 11952	POS	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
12220 / 12088	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	6
12640 / 12349	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
12910 / 12484	DEF	AT faunal change (no faunal increase)	DEF	AT	5
15400 / 13796	DEF	AT faunal change (no faunal increase)	DEF	AT	6
16511 / 14435	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 245

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 8520 Date of Summary: 30-AUG-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 15755 **Borehole MD:** Well Name: 004 Paleo Done By: OPERATOR **Borehole TVD:** 15380 **API Well Number:** 177104150500 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **Rkb Elevation:** 91 **Sample Range:** 8520 - 15755 Paleo Report Num: 1 of 2 Water Depth: 318 Public Info Code: Y 03-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 14370=oldest age-diagnostic species may indicate reverse age section, nannospecies abundance and diversity chart

available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8520 / 8259	DEF	AT first sample examined	DEF	AT
8820 / 8536	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10170 / 9807	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10770 / 10398	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10980 / 10607	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
11880 / 11505	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
12120 / 11745	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12270 / 11895	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12300 / 11925	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12360 / 11985	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
12480 / 12105	DEF	AT salt	DEF	AT
14250 / 13875	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT
14370 / 13995	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
14670 / 14295	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
15150 / 14774	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
15480 / 15104	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
15754 / 15378	POS	IN Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT
15755 / 15379	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

246

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 01-SEP-1999 8520 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 15755 **Borehole MD:** Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15380 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177104150500 Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 8520 - 15755 Water Depth: 318 Public Info Code: Y 03-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Interval between 14670 and 15755 in the well may indicate reverse age section, foram species abundance and diversity chart available, see report for

details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
8520 / 8259	DEF	AT first sample examined	DEF	AT	4
9390 / 9063	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
10920 / 10547	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
11820 / 11445	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
12150 / 11775	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
12300 / 11925	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	5
12659 / 12284	DEF	AT anhydrite	DEF	AT	5
12660 / 12285	DEF	AT salt	DEF	AT	5
13830 / 13455	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
14250 / 13875	DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	5
14310 / 13935	DEF	AT base of salt	DEF	AT	5
14670 / 14295	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
14940 / 14565	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
15480 / 15104	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
15540 / 15164	DEF	AT faunal change (no faunal increase)	DEF	AT	6
15755 / 15379	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 247

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 17-JUL-2000 First Sample Examined: 1860 Lease Number: G14482 Source of Paleo: OPERATOR **Borehole MD:** 21756 Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20000 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104151900 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 1860 - 21750 314 Water Depth: Public Info Code: Y 15-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
1860 / 1860	DEF	AT first sample examined	DEF	AT	4
1890 / 1890	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
1920 / 1920	DEF	AT	DEF	AT	3
3780 / 3780	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	ΑT	3
6120 / 6120	DEF	AT	DEF	ΑT	4
7560 / 7550	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
10020 / 9864	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	ΑT	4
10290 / 10118	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	4
10500 / 10317	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
10590 / 10401	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
11370 / 11139	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	4
11460 / 11225	DEF	AT	DEF	ΑT	6
11490 / 11254	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	ΑT	6
11670 / 11425	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
13410 / 13055	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
18660 / 17346	DEF	AT local marker planktic foram increase	DEF	ΑT	6
19200 / 17782	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	6
21510 / 19772	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	6
21750 / 19994	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 248

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 1860 Date of Summary: 17-JUL-2000 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 21756 **Borehole MD:** Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20000 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177104151900 Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 1860 - 21750 Water Depth: 314 Public Info Code: Y 15-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

	Paleo Top Description		<b>Ecozone</b>
DEF	AT first sample examined	DEF	AT
DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
DEF	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
DEF	AT last sample examined	DEF	AT
	EF EF EF EF EF EF EF EF EF EF OS	AT first sample examined  AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"  AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"  AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"  AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)  AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)  AT Lower Pleistocene (Calabrian) Helicosphaera sellii  AT Upper Pliocene (Gelasian) Discoaster brouweri  AT Upper Pliocene (Gelasian) Discoaster surculus  AT Lower Pliocene (Zanclian) Sphenolithus abies  AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica  AT Lower Pliocene (Zanclian) Ceratolithus acutus  AT Lower Pliocene (Messinian) Discoaster quinqueramus  AT Upper Miocene (Messinian) Discoaster quinqueramus  AT Upper Miocene (Messinian) Discoaster berggrenii "B"  AT Upper Miocene (Messinian) Discoaster berggrenii "A"  AT Upper Miocene (Tortonian) Discoaster loeblichii  AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF AT first sample examined DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A" DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B" DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme) DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii DEF AT Lower Pleistocene (Calabrian) Discoaster brouweri DEF AT Upper Pliocene (Gelasian) Discoaster brouweri DEF AT Upper Pliocene (Gelasian) Discoaster surculus DEF AT Lower Pliocene (Zanclian) Sphenolithus abies DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica DEF AT Lower Pliocene (Zanclian) Ceratolithus acutus DEF AT Upper Miocene (Messinian) Discoaster quinqueramus DEF AT Upper Miocene (Messinian) Discoaster quinqueramus DEF AT Upper Miocene (Messinian) Discoaster berggrenii "B" DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A" DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF

GEOLOGIC 02-FEB-2011

249

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 27-JUL-1998 First Sample Examined: 3500 Lease Number: G14482 Source of Paleo: OPERATOR **Borehole MD:** 11833 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11825 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149100 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 3500 - 11833 314 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
3500 / 3500	DEF	AT first sample examined	DEF	AT	2
4670 / 4670	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
6230 / 6230	DEF	AT	DEF	AT	4
7430 / 7430	DEF	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	AT	4
7520 / 7520	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
9200 / 9199	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
9440 / 9439	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
9470 / 9469	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
9710 / 9709	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	4
9740 / 9739	DEF	AT	DEF	AT	5
9770 / 9769	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
10070 / 10069	DEF	AT	DEF	AT	6
10880 / 10879	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
10910 / 10909	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
11150 / 11149	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
11660 / 11650	POS	AT local marker planktic foram increase	DEF	AT	6
11833 / 11817	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

250

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 3500 Date of Summary: 27-JUL-1998 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 11833 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11825 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177104149100 Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 3500 - 11833 Water Depth: 314 Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
3500 / 3500	DEF	AT first sample examined	DEF	AT
3830 / 3830	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
4730 / 4730	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
6470 / 6470	POS	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
7550 / 7550	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7790 / 7790	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9200 / 9199	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9380 / 9379	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
9440 / 9439	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
9470 / 9469	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus (increase)	DEF	AT
9740 / 9739	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
9800 / 9799	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9980 / 9979	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10070 / 10069	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10400 / 10399	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11000 / 10999	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
11330 / 11328	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
11833 / 11817	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 251

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 27-JUL-1998 First Sample Examined: 11300 Lease Number: G14482 Source of Paleo: OPERATOR **Borehole MD:** 14350 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14264 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149101 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 11300 - 14360 314 Water Depth: Public Info Code: Y 23-AUG-2008 Ecozone Eq MMS: N Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
11300 / 11299	DEF AT first sample examined	DEF AT
12410 / 12391	POS AT Upper Miocene (Messinian) Globorotalia juanai	DEF AT
13070 / 13036	DEF AT sample gap top	DEF AT
13190 / 13152	DEF AT sample gap bottom	DEF AT
14330 / 14246	DEF AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF AT
14360 /	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 252

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 27-JUL-1998 First Sample Examined: 11300 Lease Number: G14482 Source of Paleo: OPERATOR **Borehole MD:** 14350 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14264 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149101 **Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 11300 - 14360 314 Water Depth: Public Info Code: Y 23-AUG-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11300 / 11299	DEF AT	first sample examined	DEF	AT
11301 / 11300	DEF AT	Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12050 / 12038	DEF AT	local marker floral increase	DEF	AT
13970 / 13901	POS AT	Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
14150 / 14074	DEF AT	condensed section	DEF	AT
14239 / 14159	DEF AT	salt weld	DEF	AT
14240 / 14160	POS AT	Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
14360 /	DEF AT	last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

253

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 12-MAR-1999 First Sample Examined: 3800 Lease Number: G14482 Source of Paleo: OPERATOR **Borehole MD:** 11627 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11353 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149600 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 3800 - 11720 314 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 15-JAN-2009 Paleo ID: 002

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
3800 / 3800	DEF	AT first sample examined	DEF	AT	2
4700 / 4700	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	2
4730 / 4730	DEF	AT faunal change (no faunal increase)	DEF	ΑT	3
6110 / 6110	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
7580 / 7580	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
9350 / 9341	POS	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	ΑT	4
9380 / 9370	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
9710 / 9685	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
9950 / 9907	POS	AT local marker (general)	DEF	ΑT	5
9951 / 9908	POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	ΑT	5
10100 / 10042	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
10340 / 10250	DEF	AT faunal change (no faunal increase)	DEF	ΑT	6
11450 / 11202	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
11720 /	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

254

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 7010 Date of Summary: 12-MAR-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 11627 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11353 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149600 **Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 7010 - 11700 Water Depth: 314 Public Info Code: Y 15-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7010 / 7010	DEF	AT first sample examined	DEF	AT
7490 / 7490	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7820 / 7820	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9290 / 9283	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9350 / 9341	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9380 / 9370	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
9410 / 9399	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
9950 / 9907	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10040 / 9988	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10250 / 10172	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
10340 / 10250	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11120 / 10917	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11700 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC

255

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 12-MAR-1999 First Sample Examined: 11720 Lease Number: G14482 Source of Paleo: OPERATOR 15255 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14479 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149601 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 11720 - 15255 314 Water Depth: Public Info Code: Y 13-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
11720 / 11432	DEF	AT first sample examined	DEF	ΑT	6
11990 / 11661	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	ΑT	6
12050 / 11712	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
12200 / 11840	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	6
12740 / 12305	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
13940 / 13347	DEF	AT local marker planktic foram increase	DEF	ΑT	5
14270 / 13631	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	5
14720 / 14017	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	5
14839 / 14119	POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	ΑT	5
14840 / 14120	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	5
14869 / 14145	DEF	AT Bathysiphon fauna	DEF	ΑT	5
14870 / 14146	DEF	AT local marker benthic foram increase	DEF	ΑT	5
15170 / 14406	DEF	AT Bathysiphon fauna	DEF	ΑT	5
15200 / 14432	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	5
15255 / 14480	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC

256

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 11780 Date of Summary: 12-MAR-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 15255 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14479 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149601 **Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 11780 - 15255 Water Depth: 314 Public Info Code: Y 13-MAR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
11780 / 11483	DEF	AT first sample examined	DEF	AT
11990 / 11661	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
12020 / 11687	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12080 / 11737	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12230 / 11865	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12410 / 12020	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	AT
14720 / 14017	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
14750 / 14043	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
14810 / 14094	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
15255 / 14480	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

257

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 First Sample Examined: 11940 Date of Summary: 12-MAR-1999 Lease Number: G14482 Source of Paleo: OPERATOR 14522 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14204 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149602 **Rkb Elevation:** 91 Paleo Report Num: 1 of 3 **Sample Range:** 11940 - 14240 Water Depth: 314 Public Info Code: Y 17-APR-2009 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Report based on sidewall cores, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
11940 / 11783	DEF	AT first sample examined	DEF	AT
12120 / 11953	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
12270 / 12094	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
13380 / 13140	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
13770 / 13505	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
14090 / 13803	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
14239 / 13941	POS	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
14240 / 13942	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

258

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 09-APR-1999 First Sample Examined: 10400 Lease Number: G14482 Source of Paleo: OPERATOR 14522 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14204 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149602 **Rkb Elevation:** 91 Paleo Report Num: 2 of 3 **Sample Range:** 10400 - 14520 314 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 17-APR-2009 Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>!</u>	<u>Ecozone</u>
10400 / 10331	DEF	AT first sample examined	DEF	ΑT	6
10401 / 10332	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	6
11180 /11067	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
12050 / 11887	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	ΑT	6
12230 / 12056	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
12290 / 12113	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
12530 / 12339	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	6
12829 / 12620	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	6
12830 / 12621	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	6
13189 / 12960	DEF	AT local marker planktic foram increase	DEF	ΑT	6
13190 / 12961	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	6
13850 / 13580	DEF	IN salt	POS	ΑT	6
13969 / 13690	DEF	AT base of salt	DEF	ΑT	6
13970 / 13691	DEF	IN local marker planktic foram increase	DEF	ΑT	6
14090 / 13803	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	6
14208 / 13912	DEF	AT out-of-place section	DEF	ΑT	6
14209 / 13913	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	6
14210 / 13914	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	ΑT	6
14360 / 14054	DEF	AT local marker planktic foram increase	DEF	ΑT	6
14520 / 14202	DEF	AT last sample examined	DEF	ΑT	6

This report contains public paleo reports only for the time period stated

GEOLOGIC 02-FEB-2011 PAGE: 259

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 Date of Summary: 09-APR-1999 10400 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 14522 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14204 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149602 **Rkb Elevation:** 91 Paleo Report Num: 3 of 3 **Sample Range:** 10400 - 14490 Water Depth: 314 Public Info Code: Y 17-APR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

	Paleo Top Description		<b>Ecozone</b>
DEF	AT first sample examined	DEF	AT
DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
POS	AT maximum flooding surface	DEF	AT
DEF	AT condensed section	DEF	AT
POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
DEF	AT salt	DEF	AT
DEF	AT base of salt	DEF	AT
DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
DEF	IN Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
DEF	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT
DEF	AT last sample examined	DEF	AT
	DEF POS DEF	DEF AT first sample examined  DEF IN Lower Pliocene (Zanclian) Sphenolithus abies "B"  POS AT maximum flooding surface  DEF AT condensed section  POS AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus  DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF AT Upper Miocene (Messinian) Discoaster quinqueramus  DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF AT salt  DEF AT salt  DEF AT base of salt  DEF IN Upper Miocene (Messinian) Discoaster berggrenii  POS AT Upper Miocene (Tortonian) Discoaster hamatus  POS AT Middle Miocene (Serravallian) Sphenolithus heteromorphus  POS AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)  DEF IN Upper Miocene (Tortonian) Catinaster coalitus  DEF AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF AT first sample examined  DEF IN Lower Pliocene (Zanclian) Sphenolithus abies "B"  POS AT maximum flooding surface  DEF AT condensed section  DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus  DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF AT Upper Miocene (Messinian) Discoaster quinqueramus  DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF AT Juper Miocene (Messinian) Discoaster berggrenii  DEF DEF AT base of salt  DEF DEF AT base of salt  DEF DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF DEF IN Upper Miocene (Messinian) Discoaster berggrenii  DEF POS AT Upper Miocene (Tortonian) Discoaster hamatus  DEF POS AT Middle Miocene (Serravallian) Sphenolithus heteromorphus  DEF DEF IN Upper Miocene (Tortonian) Sphenolithus heteromorphus (acme)  DEF DEF AT Upper Miocene (Tortonian) Catinaster coalitus  DEF DEF AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis

This report contains public paleo reports only for the time period stated

GEOLOGIC

02-FEB-2011 PAGE: 260

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 13713 Date of Summary: 17-MAY-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 14220 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13813 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149603 **Rkb Elevation:** 91 **Sample Range:** 13713 - 14151 Paleo Report Num: 1 of 3 Water Depth: 314 Public Info Code: Y 14-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Foram and nanno report based on sidewall cores, foram and nanno species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13713 / 13357	DEF	AT first sample examined	DEF A	AT 6
13785 / 13422	POS	AT Arenaceous fauna (local marker)	DEF A	AT 6
13787 / 13423	DEF	AT local marker deep water fauna	DEF II	N 5
13964 / 13581	POS	AT local marker floral increase	DEF II	N 5
13965 / 13582	POS	AT Arenaceous fauna (local marker)	DEF A	AT 6
14069 / 13675	POS	AT Arenaceous fauna (local marker)	DEF A	AT 6
14150 / 13747	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF A	AT 6
14151 / 13748	DEF	AT condensed section	DEF A	AT 6
14152 / 13749	DEF	AT last sample examined	DEF A	AT 6

GEOLOGIC

PAGE: 261

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 8530 Date of Summary: 04-JUN-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 14220 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13813 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177104149603 **Rkb Elevation:** 91 Paleo Report Num: 2 of 3 **Sample Range:** 8530 - 14220 Water Depth: 314 Public Info Code: Y 14-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Samples from 13725 TO 14151 are based on sidewall cores, 14150 to 14220 were obtained through cuttings, foram species abundance and diversity

chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecoz</u>	<u>zone</u>
8530 / 8529	DEF	AT first sample examined	DEF	AT	4
9470 / 9469	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
9740 / 9739	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9800 / 9799	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
9890 / 9889	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
9980 / 9979	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11780 / 11627	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
11870 / 11707	DEF	AT faunal change (no faunal increase)	DEF	AT	6
12050 / 11867	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
12980 / 12695	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14220 / 13810	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

262

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 346 8530 Date of Summary: 04-JUN-1999 First Sample Examined: Lease Number: G14482 Source of Paleo: OPERATOR 14220 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13813 **Drilling Operator: ANADARKO PETROLEUM CORPORATION API Well Number:** 177104149603 **Rkb Elevation:** 91 Paleo Report Num: 3 of 3 **Sample Range:** 8530 - 14220 Water Depth: 314 Public Info Code: Y 14-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, samples from 13750 TO 14151 are based on sidewall cores, nannospecies abundance and diversity chart available, see

report for details

<u> MD / TVD</u>		Paleo Top Description		<u>Ecozone</u>
8530 / 8529	DEF	AT first sample examined	DEF	AT
8990 / 8989	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9170 / 9169	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9320 / 9319	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
9530 / 9529	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9680 / 9679	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10070 / 10069	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11780 / 11627	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
14220 / 13810	DEF	AT last sample examined	DEF	AT

GEOLOGIC

263

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 352 Date of Summary: 07-JUL-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G03410 **Borehole MD:** 14830 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 14827 **Drilling Operator:** NEWFIELD EXPLORATION COMPANY **API Well Number:** 177104150200 **Rkb Elevation:** 90 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 295 Water Depth: Public Info Code: Y 07-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u>MD / TVD</u>		Paleo Top Description		<u>Ecozo</u>	<u>ne</u>
2630 / 2630	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	- AT	
9330 / 9329	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	- AT	
10170 / 10169	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	- AT	
10950 / 10949	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	
13845 / 13843	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	
14400 / 14397	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	- AT	

GEOLOGIC 02-FEB-2011 PAGE: 264

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 390 Date of Summary: 26-JUN-1998 First Sample Examined: 1700 Lease Number: G14487 Source of Paleo: OPERATOR **Borehole MD:** 9730 Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9730 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 177104149000 **Rkb Elevation:** 80 Paleo Report Num: 1 of 2 **Sample Range:** 1700 - 9620 380 Water Depth: Public Info Code: Y 16-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Kilauea Prospect, foram species abundance and diversity chart available, see report for details

<u>MD/</u> 1	<u>TVD</u>		Paleo Top Description		Ec	<u>ozone</u>
1700 /	1700	DEF	AT first sample examined	DEF	AT	4
1701 /	1701	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
2060 /	2060	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
3500 /	3500	DEF	AT local marker foram increase	DEF	AT	3
3770 /	3770	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
4130 /	4130	DEF	AT local marker planktic foram increase	DEF	AT	3
4760 /	4760	DEF	AT local marker benthic foram increase	DEF	AT	3
6650 /	6650	DEF	AT local marker benthic foram increase	DEF	AT	4
6830 /	6830	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
6920 /	6920	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
9079 /	9078	DEF	AT local marker planktic foram increase	DEF	AT	4
9080 /	9079	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
9350 /	9349	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
9620 /	9619	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC

265

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 390 Date of Summary: 26-JUN-1998 First Sample Examined: 1700 Lease Number: G14487 Source of Paleo: OPERATOR **Borehole MD:** 9730 Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9730 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 177104149000 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 1700 - 9620 380 Water Depth: Public Info Code: Y 16-JUL-2008 Ecozone Eq MMS: N Paleo ID: 003

Remark: Kilauea Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
1700 / 1700	DEF	AT first sample examined	DEF	AT
2240 / 2240	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
6650 / 6650	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8990 / 8989	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9620 / 9619	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

266

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 390 9620 Date of Summary: 26-JUN-1998 First Sample Examined: Lease Number: G14487 Source of Paleo: OPERATOR 17220 **Borehole MD:** Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17200 **Drilling Operator:** MARATHON OIL COMPANY **API Well Number:** 177104149001 **Rkb Elevation:** 80 **Sample Range:** 9620 - 17219 Paleo Report Num: 1 of 2 377 Water Depth: Public Info Code: Y 16-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Kilauea Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	ozone
9620 / 9619	DEF	AT first sample examined	DEF	AT	4
9621 / 9620	POS	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
10070 / 10069	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
10610 / 10609	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	POS	AT	5
11360 / 11359	DEF	AT pyrite	DEF	AT	5
11390 / 11389	DEF	IN Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
11869 / 11868	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
11870 / 11869	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
11900 / 11899	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
11960 / 11959	DEF	AT local marker planktic foram increase	DEF	AT	5
11988 / 11987	DEF	AT Bathysiphon fauna	DEF	AT	5
11989 / 11988	DEF	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	5
11990 / 11989	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
13850 / 13848	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	5
13910 / 13908	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
13940 / 13938	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	ΑT	5
14000 / 13998	DEF	AT Upper Pliocene (Piacenzian) Cyclammina sp.	DEF	ΑT	5
14070 / 14068	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	ΑT	5
14219 / 14217	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	5
14220 / 14218	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
15770 / 15762	DEF	AT Bathysiphon fauna	DEF	AT	5
16190 / 16179	DEF	AT sample gap top	POS	AT	5

This report contains public paleo reports only for the time period stated

GEOLOGIC

267

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 390 Date of Summary: 26-JUN-1998 First Sample Examined: 9620 Lease Number: G14487 Source of Paleo: OPERATOR **Borehole MD:** 17220 Well Name: SS002 17200 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator: MARATHON OIL COMPANY API Well Number:** 177104149001 **Rkb Elevation:** 80 Paleo Report Num: 1 of 2 **Sample Range:** 9620 - 17219 377 Water Depth: Public Info Code: Y 16-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		Ecoz	one
16334 / 16322	DEF	AT sample gap bottom	DEF A	ΑT	5
16610 / 16596	DEF	AT Eggerella sp. (local marker)	DEF A	۸T	5
17000 / 16982	DEF	AT Eggerella 3 (local marker)	DEF A	۸T	5
17150 / 17130	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF A	<b>λ</b> Τ	5
17210 / 17190	POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF A	ΑT	5
17219 / 17199	DEF	AT last sample examined	DEF A	<b>T</b>	5

GEOLOGIC 02-FEB-2011

268

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 390 Date of Summary: 26-JUN-1998 First Sample Examined: 9620 Lease Number: G14487 Source of Paleo: OPERATOR 17220 **Borehole MD:** Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17200 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 177104149001 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 9620 - 17219 377 Water Depth: Public Info Code: Y 16-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Kilauea Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9620 / 9619	DEF	AT first sample examined	DEF	AT
10850 / 10849	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11390 / 11389	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
11900 / 11899	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11930 / 11929	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
13910 / 13908	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
16190 / 16179	DEF	AT sample gap top	DEF	AT
16334 / 16322	DEF	AT sample gap bottom	DEF	AT
16700 / 16685	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17150 / 17130	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17219 / 17199	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

269

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: El 391 Date of Summary: 22-JUN-2006 7990 First Sample Examined: Lease Number: G22688 Source of Paleo: OPERATOR 11248 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11000 Drilling Operator: REMINGTON OIL AND GAS CORPORATION **API Well Number:** 177104160200 **Rkb Elevation:** 124 **Sample Range:** 7990 - 11248 Paleo Report Num: 1 of 1 398 Water Depth: Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Ec	cozone
7990 / 7989	DEF	AT first sample examined	DEF	AT	4
7991 / 7990	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
8320 / 8313	DEF	AT reworked material	DEF	AT	4
9010 / 8957	DEF	AT	DEF	AT	3
9940 / 9790	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	3
10120 / 9958	DEF	AT reworked material	DEF	AT	3
10390 / 10210	DEF	AT	DEF	AT	4
10420 / 10238	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
10480 / 10293	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
11248 / 10999	DEF	AT last sample examined	DEF	IN	5

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 270

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

0

10118

6744

525

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: El 395 Date of Summary: 30-NOV-2001 First Sample Examined:

Lease Number: G21649 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 001 Paleo Done By: OPERATOR

API Well Number: 177104153500 Drilling Operator: WALTER OIL & GAS CORPORATION Rkb Elevation: 78

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 14-JAN-2008 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

9550 / 6362 DEF IN Middle Pleistocene (Ionian) Trimosina "A" DEF AT

GEOLOGIC 02-FEB-2011

271

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 873 Date of Summary: 02-OCT-1998 11400 First Sample Examined: Lease Number: G12136 Source of Paleo: OPERATOR 13864 **Borehole MD:** Well Name: A021 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13656 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608105008800 **Rkb Elevation:** 153 Paleo Report Num: 1 of 2 **Sample Range:** 11400 - 13854 773 Water Depth: Public Info Code: Y 10-AUG-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11400 / 11295	DEF	AT first sample examined	DEF A	<b>λ</b> Τ 5
11880 / 11749	DEF	AT	DEF A	4T 6
11910 / 11777	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF A	4T 6
13854 / 13647	DEF	AT last sample examined	DEF A	AT 6

GEOLOGIC 02-FEB-2011

PAGE: 272

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	EW 873	Date of Summary: 02-OCT-1998	First Sample Examined:	11400
Lease Number:	G12136	Source of Paleo: OPERATOR	Borehole MD:	13864
Well Name:	A021	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	13656
<b>API Well Number:</b>	608105008800	Drilling Operator: MARATHON OIL COMPANY	Rkb Elevation:	153
Paleo Report Num:	2 of 2	Sample Range: 11400 - 13854	Water Depth:	773
Public Info Code:	Y 10-AUG-2008	Ecozone Eq MMS:	Paleo ID:	003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
11400 / 11295	DEF AT first sample examined	DEF AT
11940 / 11806	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF AT
13854 / 13647	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

**PAGE:** 273

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EW 873	Date of Summary: 02-OCT-1998	First Sample Examined:	13650
Lease Number: G12136	Source of Paleo: OPERATOR	Borehole MD:	17443
Well Name: A021	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	17198
API Well Number: 60810500880	O1 Drilling Operator: MARATHON OIL COMPANY	Rkb Elevation:	153
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 13650 - 17442	Water Depth:	773
Public Info Code: Y 22-AUG-2	2008 Ecozone Eg MMS: Y	Paleo ID:	001

Remark: Bypass 1 report, foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13650 / 13474	DEF AT first sample examined	DEF AT 6
13651 / 13475	DEF IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF AT 6
17442 / 17197	DEF AT last sample examined	DEF AT 6

GEOLOGIC 02-FEB-2011

274

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 873 Date of Summary: 02-OCT-1998 First Sample Examined: 13650 Lease Number: G12136 Source of Paleo: OPERATOR **Borehole MD:** 17443 17198 Well Name: A021 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608105008801 **Rkb Elevation:** 153 Paleo Report Num: 2 of 2 **Sample Range:** 13650 - 17442 773 Water Depth: Public Info Code: Y 22-AUG-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report for bypass 1, nannospecies abundance and diversity chart available, see report for details

<u>MD / TVD</u>		Paleo Top Description		<u>Ecozone</u>
13650 / 13474	DEF	AT first sample examined	DEF	AT
13651 / 13475	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
15270 / 15057	POS	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
17442 / 17197	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 275

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 873 5130 Date of Summary: 16-NOV-1998 First Sample Examined: Lease Number: G12136 Source of Paleo: OPERATOR 12515 **Borehole MD:** Well Name: A023 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11322 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608105009200 **Rkb Elevation:** 153 Paleo Report Num: 1 of 2 **Sample Range:** 5130 - 12515 773 Water Depth: Public Info Code: Y 01-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD	<u>)                                    </u>	Paleo Top Description		<u> </u>	cozone
5130 / 470	9 DEF	AT first sample examined	DEF	AT	5
5400 / 493	B3 DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
6030 / 543	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
6120 / 550	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
6210 / 557	77 DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
7130 / 630	)4 DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
7310 / 644	17 DEF	AT	DEF	ΑT	5
8180 / 714	14 DEF	AT	DEF	IN	5
8300 / 724	11 DEF	AT	DEF	ΑT	6
8450 / 736	DEF	AT	DEF	AT	5
9830 / 863	DEF	AT	DEF	AT	6
10340 / 914	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
12050 / 1085	57 DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
12515 / 1132	22 DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 276

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 873 5130 Date of Summary: 16-NOV-1998 First Sample Examined: Lease Number: G12136 Source of Paleo: OPERATOR 12515 **Borehole MD:** Well Name: A023 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11322 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608105009200 **Rkb Elevation:** 153 Paleo Report Num: 2 of 2 **Sample Range:** 5130 - 12515 Water Depth: 773 Public Info Code: Y 01-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5130 / 4709	DEF	AT first sample examined	DEF	AT
5220 / 4783	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
5400 / 4933	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5850 / 5295	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6030 / 5437	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
6120 / 5507	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
6390 / 5718	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
7220 / 6376	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
10340 / 9147	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10940 / 9747	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11840 / 10647	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
11900 / 10707	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12515 / 11322	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

277

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 873 Date of Summary: 13-JAN-1999 5250 First Sample Examined: Lease Number: G12136 Source of Paleo: OPERATOR 12517 **Borehole MD:** Well Name: A024 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11666 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608104010200 **Rkb Elevation:** 153 Paleo Report Num: 1 of 2 **Sample Range:** 5250 - 12510 773 Water Depth: Public Info Code: Y 05-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD	Paleo To	p Description			<b>Ecozone</b>
5250 / 4898	DEF AT first sam	ple examined	DEF	IN	5
5610 / 5222	DEF AT Upper PI	ocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
6420 / 5937	DEF AT Lower PI	ocene (Zanclian) Globorotalia margaritae	DEF	IN	5
9120 / 8343	DEF AT		DEF	ΑT	6
9210 / 8422	DEF AT Lower PI	ocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
10680 / 9831	POS AT Lower PI	ocene (Zanclian) Buliminella 1	DEF	ΑT	6
11520 / 10671	POS AT Lower PI	ocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
12150 / 11300	DEF AT Upper M	ocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
12510 / 11659	DEF AT last sam	ole examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

278

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 873 5250 Date of Summary: 13-JAN-1999 First Sample Examined: Lease Number: G12136 Source of Paleo: OPERATOR 12517 **Borehole MD:** Well Name: A024 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11666 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608104010200 **Rkb Elevation:** 153 Paleo Report Num: 2 of 2 773 **Sample Range:** 5250 - 12510 Water Depth: Public Info Code: Y 05-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 10500=significant consistent reoccurrence, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5250 / 4898	DEF	AT first sample examined	DEF A	<b>Α</b> Τ
5430 / 5061	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF A	<b>Α</b> Τ
5610 / 5222	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF A	<b>Α</b> Τ
5790 / 5382	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF A	<b>ΑΤ</b>
6240 / 5777	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF A	<b>ΑΤ</b>
8040 / 7385	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF A	<b>ΑΤ</b>
9270 / 8476	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF A	<b>ΑΤ</b>
9450 / 8641	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF A	<b>ΑΤ</b>
10500 / 9651	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF A	<b>ΑΤ</b>
11370 / 10521	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF A	<b>ΑΤ</b>
12180 / 11330	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF A	<b>ΑΤ</b>
12510 / 11659	DEF	AT last sample examined	DEF A	<b>Α</b> Τ

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 279

12701

560

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 910 Date of Summary: 09-JUN-1999

First Sample Examined: 0 13322

Lease Number: G13079 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Well Name: A003 Paleo Done By: OPERATOR

Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608104010300 **Rkb Elevation:** 84

0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Public Info Code: Y 01-APR-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD **Paleo Top Description Ecozone** 

DEF IN Upper Pliocene (Gelasian) Globorotalia miocenica 11551 / 10932 DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 280

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 949 Date of Summary: 16-FEB-2004 First Sample Examined: 5010 Lease Number: G21739 Source of Paleo: OPERATOR **Borehole MD:** 13200 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13035 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608104012400 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 5010 - 13200 865 Water Depth: Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
5010 / 5009	DEF	AT first sample examined	DEF	AT	4
5930 / 5929	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
6920 / 6919	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	4
8810 / 8807	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
8930 / 8927	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
9260 / 9256	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
9530 / 9524	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
10130 / 10119	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
10490 / 10479	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	ΑT	5
11660 / 11621	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	ΑT	5
11690 / 11649	DEF	AT faunal change (no faunal increase)	DEF	IN	5
11840 / 11789	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
13200 / 13035	DEF	AT last sample examined	DEF	AT	5

This report contains public paleo reports only for the time period stated

GEOLOGIC 02-FEB-2011

281

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 949 Date of Summary: 16-FEB-2004 First Sample Examined: 8810 Lease Number: G21739 Source of Paleo: OPERATOR **Borehole MD:** 13200 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13035 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608104012400 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 8810 - 13200 865 Water Depth: Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8810 / 8807	DEF	AT first sample examined	DEF	AT
8811 / 8808	DEF	IN Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
9319 / 9314	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9320 / 9315	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10130 / 10119	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10520 / 10509	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11690 / 11649	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
13200 / 13035	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 282

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EW 949	Date of Summary: 01-MAR-2004	First Sample Examined:	10545
Lease Number: G21739	Source of Paleo: OPERATOR	Borehole MD:	12450
Well Name: 002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	12185
API Well Number: 608104012401	<b>Drilling Operator: SAMEDAN OIL CORPORATION</b>	Rkb Elevation:	78
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 10545 - 12450	Water Depth:	865
Public Info Code: Y 30-APR-2009	Ecozone Eq MMS: Y	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
10545 / 10534	DEF	AT first sample examined	POS	AT	5
10546 / 10535	DEF	AT cement	POS	AT	5
10680 / 10669	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
11550 / 11486	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
12420 / 12164	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
12450 / 12187	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 283

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 949 Date of Summary: 01-MAR-2004 First Sample Examined: 10545 Lease Number: G21739 Source of Paleo: OPERATOR **Borehole MD:** 12450 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12185 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608104012401 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 10545 - 12450 865 Water Depth: Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10545 / 10534	DEF AT first sample examined	DEF AT
10590 / 10579	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
11700 / 11609	POS IN Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF AT
12420 / 12164	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
12450 / 12187	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

284

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 965 8880 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G12142 Source of Paleo: OPERATOR 11731 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10824 Drilling Operator: BRITISH-BORNEO USA INC **API Well Number:** 608105007900 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 8880 - 11670 1694 Water Depth: Public Info Code: Y 31-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8880 / 8258	DEF AT	first sample examined	DEF A	AT 5
10770 / 9903	DEF AT	Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF A	AT 5
11460 / 10558	POS AT	Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF A	AT 5
11670 / 10764	DEF AT	last sample examined	DEF /	AT 5

GEOLOGIC

PAGE: 285

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 965 8880 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G12142 Source of Paleo: OPERATOR 11731 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10824 Drilling Operator: BRITISH-BORNEO USA INC **API Well Number:** 608105007900 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 8880 - 11670 1694 Water Depth: Public Info Code: Y 31-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8880 / 8258	DEF	AT first sample examined	DEF	AT
10260 / 9441	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
10770 / 9903	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
11670 / 10764	DEF	AT last sample examined	DEF	AT

GEOLOGIC

286

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 965 11670 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G12142 Source of Paleo: OPERATOR 16300 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15401 Drilling Operator: BRITISH-BORNEO USA INC **API Well Number:** 608105007901 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 11670 - 16300 1696 Water Depth: Public Info Code: Y 02-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		Ecoz	zone
11670 / 10773	DEF	AT first sample examined	DEF /	AT	5
12570 / 11673	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF /	AT	5
12630 / 11733	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF I	IN	5
13320 / 12423	DEF	AT	DEF /	AT	6
13380 / 12483	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF /	AT	6
14100 / 13203	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF /	AT	6
14190 / 13293	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF /	AT	6
16300 / 15401	DEF	AT last sample examined	DEF /	AT	6

GEOLOGIC 02-FEB-2011

287

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 965 11670 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G12142 Source of Paleo: OPERATOR 16300 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15401 Drilling Operator: BRITISH-BORNEO USA INC **API Well Number:** 608105007901 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 11670 - 16290 Water Depth: 1696 Public Info Code: Y 02-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11670 / 10773	DEF	AT first sample examined	DEF	AT
12090 / 11193	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
12360 / 11463	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12540 / 11643	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
12570 / 11673	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
12600 / 11703	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
12630 / 11733	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12870 / 11973	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
13230 / 12333	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
13350 / 12453	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
13370 / 12473	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
14280 / 13383	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
16020 / 15122	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
16290 / 15391	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 288

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 965 16310 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G12142 Source of Paleo: OPERATOR 16725 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15492 Drilling Operator: BRITISH-BORNEO USA INC **API Well Number:** 608105007902 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 16310 - 16700 1696 Water Depth: Public Info Code: Y 16-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details, no diagnostic foram markers noted

MD / TVD	Paleo Top Description	<u>Ecozone</u>
16310 / 15131	DEF AT first sample examined	DEF AT 6
16700 / 15475	DEF AT last sample examined	DEF AT 6

GEOLOGIC

02-FEB-2011 PAGE: 289

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Public Info Code: Y 16-FEB-2009

Area Block: EW 965 16310 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G12142 Source of Paleo: OPERATOR 16725 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 15492 Drilling Operator: BRITISH-BORNEO USA INC **API Well Number:** 608105007902 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 16310 - 16700 1696 Water Depth:

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details, no diagnostic foram markers noted

MD / TVD	Paleo Top Description	<u>Ecozone</u>
16310 / 15131	DEF AT first sample examined	DEF AT
16700 / 15475	DEF AT last sample examined	DEF AT

**Ecozone Eq MMS:** 

GEOLOGIC 02-FEB-2011 PAGE: 290

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 966 Date of Summary: 09-JUN-1998 First Sample Examined: 3540 Lease Number: G18184 Source of Paleo: OPERATOR **Borehole MD:** 12150 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12147 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608104010000 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 3540 - 12150 1853 Water Depth: Public Info Code: Y 19-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
3540 / 3540	DEF	AT first sample examined	DEF	AT	4
3541 / 3541	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
3900 / 3900	DEF	AT faunal change (no faunal increase)	POS	AT	5
6540 / 6540	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
10770 / 10767	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
11400 / 11397	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11460 / 11457	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
12150 / 12147	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 291

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 966 Date of Summary: 09-JUN-1998 First Sample Examined: 3540 Lease Number: G18184 Source of Paleo: OPERATOR **Borehole MD:** 12150 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12147 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608104010000 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 3540 - 12150 1853 Water Depth: Public Info Code: Y 19-MAY-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
3540 / 3540	DEF	AT first sample examined	DEF	AT
6780 / 6780	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9990 / 9988	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
10770 / 10767	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
11160 / 11157	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11490 / 11487	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11910 / 11907	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12150 / 12147	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

292

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 966 Date of Summary: 09-JUN-1998 First Sample Examined: 10070 Lease Number: G18184 Source of Paleo: OPERATOR **Borehole MD:** 11950 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11880 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608104010001 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 10070 - 11950 1853 Water Depth: Public Info Code: Y 01-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco:	zone
10070 / 10068	DEF	AT first sample examined	DEF	AT	5
10071 / 10069	DEF	AT cement	DEF	AT	5
10700 / 10694	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
11240 / 11213	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11450 / 11410	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
11540 / 11495	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
11950 / 11880	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

293

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 966 Date of Summary: 09-JUN-1998 First Sample Examined: 10070 Lease Number: G18184 Source of Paleo: OPERATOR **Borehole MD:** 11950 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11880 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608104010001 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 10070 - 11950 1853 Water Depth: Public Info Code: Y 01-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10070 / 10068	DEF	AT first sample examined	DEF	AT
10700 / 10694	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
10730 / 10724	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
11240 / 11213	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11450 / 11410	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11480 / 11439	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11510 / 11467	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
11810 / 11748	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11950 / 11880	DEF	AT last sample examined	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 294

0

14396

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: EW 1003 Date of Summary: 22-JAN-1999 First Sample Examined:

Lease Number: G06921 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: A003 Paleo Done By: OPERATOR Borehole TVD: 13279

API Well Number: 608105009001 Drilling Operator: TATHAM OFFSHORE DEVELOPMENT INC Rkb Elevation: 73

 Paleo Report Num:
 1 of 1
 Sample Range:
 0 - 0
 Water Depth:
 1483

 Public Info Code:
 Y 18-JAN-2009
 Ecozone Eq MMS:
 Paleo ID:
 001

Remark: Company-integrated foram and nanno report

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
9160 / 8996	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
12010 / 11323	DEF AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 295

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 4000 Date of Summary: 01-APR-2000 First Sample Examined: Lease Number: G13091 Source of Paleo: OPERATOR 11084 **Borehole MD:** Well Name: A004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 10693 **API Well Number:** 608104010800 **Drilling Operator:** EL PASO PRODUCTION GOM INC **Rkb Elevation:** 72 1490 Paleo Report Num: 1 of 2 **Sample Range:** 4000 - 9510 Water Depth: Public Info Code: Y 10-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Prince Prospect, 7100=Sphaeroidinella dehiscens acme below Stilostomella antillea and above Globorotalia incisa, foram species abundance and

diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
4000 / 3999	DEF	AT first sample examined	DEF	AT	4
4002 / 4001	DEF	AT sand	DEF	AT	4
4100 / 4099	DEF	AT sample gap top	DEF	AT	4
4199 / 4198	DEF	AT sample gap bottom	DEF	AT	4
4200 / 4199	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
4600 / 4598	DEF	AT sample gap top	POS	AT	4
4800 / 4797	DEF	AT sample gap bottom	DEF	AT	4
4900 / 4895	DEF	AT faunal change (no faunal increase)	DEF	AT	4
5000 / 4993	DEF	AT faunal change (no faunal increase)	DEF	AT	5
5100 / 5091	POS	AT local marker planktic foram increase	DEF	ΑT	5
5300 / 5283	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
5400 / 5377	DEF	AT sample gap top	DEF	ΑT	4
5500 / 5470	DEF	AT sample gap bottom	DEF	AT	4
5600 / 5562	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
5800 / 5742	DEF	AT sample gap top	POS	ΑT	4
6000 / 5921	DEF	AT sample gap bottom	DEF	ΑT	4
6100 / 6008	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	4
6700 / 6535	DEF	AT faunal change (no faunal increase)	POS	ΑT	5
6800 / 6621	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7000 / 6790	DEF	AT faunal change (no faunal increase)	DEF	AT	5
7100 / 6875	DEF	AT local marker planktic foram increase	DEF	AT	5

GEOLOGIC 02-FEB-2011

296

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 Date of Summary: 01-APR-2000 First Sample Examined: 4000 Lease Number: G13091 Source of Paleo: OPERATOR **Borehole MD:** 11084 Well Name: A004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 10693 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number:** 608104010800 **Rkb Elevation:** 72 **Sample Range:** 4000 - 9510 Paleo Report Num: 1 of 2 1490 Water Depth:

Public Info Code: Y 10-FEB-2010 Ecozone Eq MMS: Y

MD / TVD	<u>P</u> .	aleo Top Description		Eco:	zone
7200 / 6960	DEF AT fa	aunal change (no faunal increase)	DEF	AT	4
8200 / 7843	DEF AT fa	aunal change (no faunal increase)	DEF	AT	5
8300 / 7937	DEF AT L	ower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
8400 / 8031	DEF AT L	ower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
8600 / 8223	DEF AT fa	aunal change (no faunal increase)	DEF	AT	4
8900 / 8516	DEF AT L	ower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	POS	AT	6
9000 / 8614	DEF AT fa	aunal change (no faunal increase)	DEF	AT	5
9300 / 8911	DEF AT fa	aunal change (no faunal increase)	DEF	AT	4
9480 / 9090	DEF AT fa	aunal change (no faunal increase)	POS	AT	4
9510 / 9120	DEF AT la	st sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011

297

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 4000 Date of Summary: 01-APR-2000 First Sample Examined: Lease Number: G13091 Source of Paleo: OPERATOR 11084 **Borehole MD:** Well Name: A004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 10693 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number:** 608104010800 **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 4000 - 11070 1490 Water Depth: Public Info Code: Y 10-FEB-2010 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Prince Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		<b>Ecozone</b>
4000 /	3999	DEF	AT first sample examined	DEF	AT
4200 /	4199	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
5000 /	4993	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa parallela	DEF	AT
5100 /	5091	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
6700 /	6535	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
7100 /	6875	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
8100 /	7750	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
8300 /	7937	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8400 /	8031	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
8900 /	8516	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9200 /	8811	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
9300 /	8911	DEF	AT reworked material	DEF	AT
9510 /	9120	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 298

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 9510 Date of Summary: 01-APR-2000 First Sample Examined: Lease Number: G13091 Source of Paleo: OPERATOR 13850 **Borehole MD:** Well Name: A004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13456 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number:** 608104010801 **Rkb Elevation:** 72 **Sample Range:** 9510 - 13850 Paleo Report Num: 1 of 3 1490 Water Depth: Public Info Code: Y 04-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Prince Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecozon	<u>e</u>
9510 / 9120	DEF	AT first sample examined	POS	AT 5	
9511 / 9121	DEF	AT cement	POS	AT 5	
9838 / 9448	DEF	AT pyrite	DEF	AT 5	
9839 / 9449	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT 5	
9840 / 9450	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT 5	
9898 / 9508	POS	AT fault	DEF	AT 5	
9899 / 9509	POS	AT unconformity	DEF	AT 5	
9900 / 9510	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT 6	
9901 / 9511	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT 6	
9960 / 9570	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT 6	
9990 / 9600	DEF	AT local marker planktic foram increase	DEF	AT 6	
10050 / 9660	DEF	AT faunal change (no faunal increase)	DEF	AT 5	
10170 / 9780	DEF	AT pyrite	POS	AT 6	
10290 / 9900	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	POS	AT 6	
10319 / 9929	DEF	AT pyrite	POS	AT 6	
10320 / 9930	DEF	AT local marker foram increase	DEF	AT 5	
10350 / 9960	DEF	AT pyrite	DEF	AT 5	
10410 / 10020	DEF	AT sand	DEF	AT 5	
10440 / 10050	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	POS	AT 6	
10470 / 10080	DEF	AT faunal change (no faunal increase)	DEF	AT 6	
10770 / 10380	DEF	AT sand	POS	AT 6	
10889 / 10499	DEF	AT pyrite	POS	AT 6	

GEOLOGIC 02-FEB-2011

299

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 Date of Summary: 01-APR-2000 First Sample Examined: 9510 Lease Number: G13091 Source of Paleo: OPERATOR **Borehole MD:** 13850 Well Name: A004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13456 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number:** 608104010801 **Rkb Elevation:** 72 Paleo Report Num: 1 of 3 **Sample Range:** 9510 - 13850 1490 Water Depth:

Public Info Code: Y 04-APR-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ecoz	zone
10890 / 10500	DEF	AT local marker planktic foram increase	POS	AT	6
10920 / 10530	DEF	AT pyrite	DEF	AT	5
10950 / 10560	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
11400 / 11010	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
11430 / 11040	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
11490 / 11100	DEF	AT faunal change (no faunal increase)	POS	AT	6
11550 / 11160	DEF	AT local marker foram increase	POS	AT	6
11580 / 11190	DEF	AT pyrite	POS	AT	6
11610 / 11220	DEF	AT local marker foram increase	POS	AT	6
11700 / 11310	DEF	AT local marker foram increase	POS	AT	6
11730 / 11340	DEF	AT faunal change (no faunal increase)	POS	AT	5
12450 / 12060	DEF	AT pyrite	POS	AT	5
13020 / 12630	DEF	AT faunal change (no faunal increase)	DEF	AT	5
13080 / 12690	POS	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	AT	5
13260 / 12870	DEF	AT local marker foram increase	DEF	AT	5
13470 / 13079	DEF	IN Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
13770 / 13379	DEF	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	AT	5
13850 / 13459	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 300

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 9510 Date of Summary: 01-APR-2000 First Sample Examined: Lease Number: G13091 Source of Paleo: OPERATOR 13850 **Borehole MD:** Well Name: A004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13456 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number:** 608104010801 **Rkb Elevation:** 72 Paleo Report Num: 2 of 3 **Sample Range:** 9510 - 13850 1490 Water Depth: Public Info Code: Y 04-APR-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Prince Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9510 / 9120	DEF	AT first sample examined	DEF	AT
9720 / 9330	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
9750 / 9360	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
9899 / 9509	DEF	AT condensed section	DEF	AT
9900 / 9510	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
9960 / 9570	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10050 / 9660	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10320 / 9930	DEF	AT local marker floral increase	DEF	AT
10500 / 10110	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
10590 / 10200	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11430 / 11040	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11610 / 11220	DEF	AT local marker floral increase	DEF	AT
13050 / 12660	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
13800 / 13409	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica "B"	DEF	AT
13830 / 13439	DEF	AT last sample examined	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 301

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: EW 1003 Date of Summary: 28-APR-2000

First Sample Examined: 0 13850 **Borehole MD:** 

Lease Number: G13091 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Well Name: A004

Paleo Done By: OPERATOR **Borehole TVD:** 13456

**API Well Number:** 608104010801 **Drilling Operator:** EL PASO PRODUCTION GOM INC

**Rkb Elevation:** 72 0 - 0 1490 Sample Range: Water Depth:

Paleo Report Num: 3 of 3 Public Info Code: Y 04-APR-2010 **Ecozone Eq MMS:** Paleo ID:

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica 9450 / 9060 DEF AT

GEOLOGIC 02-FEB-2011

302

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GA 151	Date of Summary: 25-MAY-2001	First Sample Examined:	0
Lease Number: G15740	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11265
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	11115
API Well Number: 427064041200	Drilling Operator: MARINER ENERGY INC	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	50
Public Info Code: Y 21-JUL-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6300 / 6298	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
6630 / 6628	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
7080 / 7078	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
9020 / 8992	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
9410 / 9361	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

GEOLOGIC 02-FEB-2011

303

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GA 151 Date of Summary: 08-JAN-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15740 **Borehole MD:** 11588 Well Name: A003 Paleo Done By: OPERATOR **Borehole TVD:** 11131 **Drilling Operator: MARINER ENERGY INC API Well Number:** 427064041400 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 50 Public Info Code: Y 30-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top	<u>Description</u>		<b>Ecozone</b>
6240 / 6236	DEF AT Middle Miod	cene (Serravallian) Bigenerina humblei	DEF	AT
6720 / 6716	DEF AT Middle Miod	cene (Langhian) Amphistegina "B"	DEF	AT
6990 / 6986	DEF AT Middle Miod	cene (Langhian) Robulus "L" / 43	DEF	AT
8970 / 8940	DEF AT Lower Mioc	ene (Burdigalian) Robulus chambersi	DEF	AT
9690 / 9544	DEF AT Lower Mioc	ene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 304

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GA 190	Date of Summary: 11-JUL-2001	First Sample Examined:	0
Lease Number: G20623	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	16113
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	14727
API Well Number: 427064042101	<b>Drilling Operator: HOUSTON EXPLORATION COMPANY</b>	Rkb Elevation:	103
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	57
Public Info Code: Y 07-NOV-2009	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5805 / 5800	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF /	ΑT
7930 / 7925	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF /	ΑT
14276 / 13574	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF /	ΑT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 305

0

6671

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GA 190 Date of Summary: 11-JUL-2001 First Sample Examined: **Borehole MD:**

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G20623

Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 6199 **Drilling Operator:** HOUSTON EXPLORATION COMPANY **API Well Number:** 427064042300 **Rkb Elevation:** 103

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 57

Public Info Code: Y 25-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

6253 / 5829 DEF AT Middle Miocene (Langhian) Robulus "L" / 43 DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 306

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GA 301 Date of Summary: 19-MAY-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G12502 11653 **Borehole MD:** Well Name: A004 Paleo Done By: OPERATOR **Borehole TVD:** 11203 132

**Drilling Operator: APACHE CORPORATION API Well Number:** 427064041000 **Rkb Elevation:** 63

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth:

Remark:

Public Info Code: Y 08-MAY-2008

MD / TVD **Paleo Top Description Ecozone** DEF AT Middle Miocene (Serravallian) Cibicides opima 8118 / 7950 DEF AT DEF AT Lower Miocene (Burdigalian) Robulus 54B DEF AT 11000 / 10610

**Ecozone Eq MMS:** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 307

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GA 301Date of Summary: 06-MAY-1998First Sample Examined: 0Lease Number: G14833Source of Paleo: COMPLETION REPORT (WELL SUMMARY)Borehole MD: 14236

Well Name: A003 Paleo Done By: OPERATOR Borehole TVD: 11502

API Well Number: 427064040500 Drilling Operator: APACHE CORPORATION Rkb Elevation: 83

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 61

Public Info Code: Y 23-FEB-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

13717 / 11178 DEF IN Lower Miocene (Burdigalian) Robulus 54B DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 308

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GA 389	Date of Summary: 31-JAN-2000	First Sample Examined:	0
Lease Number: G17133	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10448
Well Name: B001	Paleo Done By: OPERATOR	Borehole TVD:	8329
API Well Number: 427064042400	<b>Drilling Operator: HOUSTON EXPLORATION COMPANY</b>	Rkb Elevation:	75
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	97
Public Info Code: Y 28-JAN-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5780 / 4815	DEF	AT Upper Miocene (Messinian) Textularia "X"	EF A	ΑT
6597 / 5437	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	EF A	ΑT
7917 / 6429	DEF	AT Upper Miocene (Tortonian) Discorbis 12	EF A	ΑT
10397 / 8293	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	EF A	ΑT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 309

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GA 418 Date of Summary: 24-OCT-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR

API Well Number: 427064042601 Drilling Operator: HELIS OIL & GAS COMPANY LLC

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 21-SEP-2008 Ecozone Eq MMS:

First Sample Examined: 0
Borehole MD: 8101
Borehole TVD: 8100
Rkb Elevation: 100

Water Depth: 90

Paleo ID: 001

Remark: In=sand

Lease Number: G18921

MD / TVD Paleo Top Description Ecozone

7602 / 7601 DEF IN Middle Miocene (Serravallian) Cibicides opima DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 310

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GA A 203	Date of Summary: 07-MAR-2006	First Sample Examined:	483
Lease Number: G26502	Source of Paleo: OPERATOR	Borehole MD:	1200
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	1200
API Well Number: 427074010400	Drilling Operator: PIONEER NATURAL RESOURCES USA INC	Rkb Elevation:	87
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 483 - 1190	Water Depth:	191
Public Info Code: Y 19-JAN-2010	Ecozone Ea MMS: Y	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

<u>MD /</u>	<u>TVD</u>		Paleo Top Description		<u>Ecoz</u>	one
483 /	483	DEF	AT first sample examined	DEF	AT	2
980 /	980	POS	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	2
1190 /	1190	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011

311

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 22 4450 Date of Summary: 12-JUL-2005 First Sample Examined: Lease Number: G14209 Source of Paleo: OPERATOR 9296 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9180 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074026900 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 4450 - 9295 Water Depth: 450 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		1	<u>Ecozone</u>
4450 / 4450	DEF	AT first sample examined	DEF	AT	3
4451 / 4451	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
5440 / 5440	POS	AT maximum flooding surface	DEF	ΑT	3
7630 / 7620	POS	AT local marker deep water fauna	DEF	ΑT	4
7870 / 7854	POS	AT maximum flooding surface	DEF	ΑT	5
7898 / 7881	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	5
7899 / 7882	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	ΑT	5
7900 / 7883	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
7990 / 7970	POS	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	ΑT	5
8499 / 8450	POS	AT maximum flooding surface	DEF	ΑT	5
8500 / 8451	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	5
8620 / 8561	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
9130 / 9028	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	ΑT	5
9295 / 9179	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

312

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 22 Date of Summary: 12-JUL-2005 4450 First Sample Examined: Lease Number: G14209 Source of Paleo: OPERATOR **Borehole MD:** 9296 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9180 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074026900 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 4450 - 9295 Water Depth: 450 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
4450 / 4450	DEF AT first sample examined	DEF AT
5350 / 5350	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT
7900 / 7883	DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF AT
8110 / 8085	DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT
8560 / 8506	DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
9295 / 9179	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 313

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 128	Date of Summary: 02-JUN-1998	First Sample Examined:	0
Lease Number: G11454	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	16909
Well Name: A003	Paleo Done By: OPERATOR	Borehole TVD:	13308
API Well Number: 608074017402	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation:	148
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	633
Public Info Code: Y 24-APR-2008	Ecozone Eq MMS:	Paleo ID:	001

Remark: 5710=top of chaotic zone, 8570=bottom of chaotic zone

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12820 / 9333	DEF AT salt	DEF AT
14166 / 10572	DEF AT base of salt	DEF AT
14560 / 10961	POS AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF AT
14740 / 11141	POS AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT
14845 / 11246	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

314

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 128	Date of Summary: 15-JAN-1999	First Sample Examined:	0
Lease Number: G11455	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	17197
Well Name: A004	Paleo Done By: OPERATOR	Borehole TVD:	12867
API Well Number: 608074018600	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation:	148
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	633
Public Info Code: Y 15-DEC-2008	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13580 / 9316	DEF AT salt	DEF AT
14063 / 9791	DEF AT base of salt	DEF AT
15277 / 11001	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 315

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 128	Date of Summary: 28-AUG-1998	First Sample Examined:	0
Lease Number: G11455	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15634
Well Name: A006	Paleo Done By: OPERATOR	Borehole TVD:	12100
API Well Number: 608074018300	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation:	148
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	663
Public Info Code: Y 19-AUG-2008	Ecozone Eq MMS: N	Paleo ID:	001

#### Remark:

MD/TVD	Paleo Top Description	<u>Ecozone</u>
12595 / 9108	DEF AT salt	DEF AT
13125 / 9608	DEF AT base of salt	DEF AT
14624 / 11090	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT

GEOLOGIC 02-FEB-2011

316

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 128 Date of Summary: 01-MAY-1999 First Sample Examined: 13500 Source of Paleo: OPERATOR Lease Number: G11455 **Borehole MD:** 14742 Well Name: A008 Paleo Done By: OPERATOR **Borehole TVD:** 11920 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074020300 **Rkb Elevation:** 148 Paleo Report Num: 1 of 2 **Sample Range:** 13500 - 14740 633 Water Depth: Public Info Code: Y 14-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Enchilada Prospect, calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13500 / 10692	DEF AT first sample examined	DEF AT
13540 / 10732	POS IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
13940 / 11131	DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
14200 / 11390	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
14740 / 11929	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

**PAGE:** 317

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 128	Date of Summary: 02-JUN-1999	First Sample Examined: 13500	
Lease Number: G11455	Source of Paleo: OPERATOR	Borehole MD: 14742	
Well Name: A008	Paleo Done By: OPERATOR	Borehole TVD: 11920	
API Well Number: 608074020300	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation: 148	
Paleo Report Num: 2 of 2	Sample Range: 12300 - 14740	Water Depth: 633	
Public Info Code: Y 14-JUN-2009	Ecozone Ea MMS: Y	Paleo ID: 002	

Remark: Enchilada Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
13500 / 10692	DEF	AT first sample examined	DEF	AT	4
13540 / 10732	POS	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
13939 / 11130	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	5
13940 / 11131	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14200 / 11390	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	5
14740 / 11929	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 318

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 128 14100 Date of Summary: 15-JUL-1999 First Sample Examined: Lease Number: G11455 Source of Paleo: OPERATOR **Borehole MD:** 17500 13749 Well Name: A009 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074019800 **Rkb Elevation:** 148 Paleo Report Num: 1 of 1 **Sample Range:** 14100 - 17500 633 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 22-APR-2009 Paleo ID: 002

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<b>Ecozone</b>	
14100 / 10350	DEF	AT first sample examined	POS A	.T 5	
14610 / 10859	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	POS A	.T 5	
14970 / 11219	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF A	.T 5	
15000 / 11249	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF A	.T 5	
15350 / 11599	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF A	.T 5	
17130 / 13379	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF A	.T 5	
17500 / 13749	DEF	AT last sample examined	DEF A	.T 5	

GEOLOGIC 02-FEB-2011

319

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 158 Date of Summary: 25-JUL-2000 First Sample Examined: 2210 Lease Number: G17300 Source of Paleo: OPERATOR **Borehole MD:** 12005 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9550 **Drilling Operator: HESS CORPORATION API Well Number:** 608074021700 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 2210 - 12005 Water Depth: 1054 Public Info Code: Y 07-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2210 / 2210	DEF AT first sample examined	DEF AT
2510 / 2509	DEF AT Upper Pleistocene (Ionian) Gephyrocapsa oceanica (flood)	DEF AT
3260 / 3223	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT
9530 / 7456	POS AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT
12005 / 9550	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 320

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 158 Date of Summary: 26-JUL-2000 First Sample Examined: 2210 Lease Number: G17300 Source of Paleo: OPERATOR **Borehole MD:** 12005 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9550 **Drilling Operator: HESS CORPORATION API Well Number:** 608074021700 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 2210 - 12005 Water Depth: 1054 Ecozone Eq MMS: Y Public Info Code: Y 07-JUL-2010 Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD /	TVD		Paleo Top Description		Ec	ozone
2210 /	2210	DEF	AT first sample examined	POS	AT	5
2211 /	2211	DEF	IN cement	POS	AT	5
2480 /	2479	DEF	AT local marker deep water fauna	DEF	AT	5
2540 /	2538	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
3260 /	3223	DEF	AT Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	AT	5
3290 /	3250	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
3680 /	3586	DEF	AT local marker foram increase	DEF	AT	4
3860 /	3729	DEF	AT local marker benthic foram increase	DEF	AT	4
5390 /	4700	DEF	AT local marker deep water fauna	DEF	AT	5
7160 /	5682	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
7940 /	6133	POS	AT local marker foram decrease	DEF	AT	4
9920 /	7795	DEF	AT local marker deep water fauna	DEF	AT	5
10130 /	7976	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
11090 /	8798	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
12005 /	9550	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 321

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 158	Date of Summary: 25-JUL-2000	First Sample Examined: 9100
Lease Number: G17300	Source of Paleo: OPERATOR	Borehole MD: 11040
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD: 8856
API Well Number: 608074021701	Drilling Operator: HESS CORPORATION	Rkb Elevation: 86
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 9100 - 11020	Water Depth: 1050
Public Info Code: Y 22-JUL-2010	Ecozone Eq MMS:	Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9100 / 7081	DEF AT first sample examined	DEF AT
9220 / 7186	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT
11020 / 8838	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

322

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 158 Date of Summary: 26-JUL-2000 9100 First Sample Examined: Lease Number: G17300 Source of Paleo: OPERATOR **Borehole MD:** 11040 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8856 **Drilling Operator: HESS CORPORATION API Well Number:** 608074021701 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 9100 - 11020 Water Depth: 1050 Public Info Code: Y 22-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: No diagnostic foram markers noted, foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>	!
9100 / 7081	DEF AT first sample examined	DEF AT 4	
10300 / 8173	DEF AT	DEF AT 5	
10840 / 8671	DEF AT	DEF AT 4	
11020 / 8838	DEF AT last sample examined	DEF AT 5	

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 323

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 158 Date of Summary: 19-JUL-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 001 Paleo Done By: OPERATOR

Paleo Report Num: 1 of 3 Sample Range: 0 - 0

Public Info Code: Y 01-AUG-2010 Ecozone Eq MMS:

First Sample Examined: 0

Borehole MD: 11942

Borehole TVD: 9600

Rkb Elevation: 86

Water Depth: 1050

Paleo ID: 001

Remark:

Lease Number: G17300

MD / TVD Paleo Top Description Ecozone

10520 / 8400 DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 324

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 158 Date of Summary: 25-JUL-2000 10520 First Sample Examined: Lease Number: G17300 Source of Paleo: OPERATOR **Borehole MD:** 11942 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9600 **Drilling Operator: HESS CORPORATION API Well Number:** 608074021702 **Rkb Elevation:** 86 Paleo Report Num: 2 of 3 **Sample Range:** 10520 - 11940 Water Depth: 1050 Public Info Code: Y 01-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, no diagnostic coccolith markers noted, nannospecies abundance and diversity chart available, see report for details

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
10520 / 8400	DEF AT first sample examined	DEF AT
11940 / 9598	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

**PAGE: 325** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 158	Date of Summary: 26-JUL-2000	First Sample Examined:	10520
Lease Number: G17300	Source of Paleo: OPERATOR	Borehole MD:	11942
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	9600
API Well Number: 608074021702	Drilling Operator: HESS CORPORATION	Rkb Elevation:	86
Paleo Report Num: 3 of 3	Sample Range: 10520 - 11940	Water Depth:	1050
Public Info Code: Y 01-AUG-2010	Ecozone Ea MMS: Y	Paleo ID:	002

Remark: Foram species abundance and diversity chart available, see report for details

MD / T\	<u>VD</u>	Paleo Top Description		Ecoz	one
10520 / 8	3400 DEF	AT first sample examined	DEF	AT	5
10880 / 8	3703 DEF	AT	DEF	AT	4
11940 / 9	9598 DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

326

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 Date of Summary: 01-MAR-1998 First Sample Examined: 2830 Source of Paleo: OPERATOR Lease Number: G13367 **Borehole MD:** 18657 17512 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD: API Well Number:** 608074017500 Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **Rkb Elevation:** 100 Paleo Report Num: 1 of 4 **Sample Range:** 2830 - 18630 975 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Ec	ozone
2830 / 2830	DEF	AT first sample examined	DEF	AT	2
4210 / 4209	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	3
4270 / 4269	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	3
5380 / 5379	DEF	AT	POS	IN	4
11240 / 10166	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	POS	IN	4
12380 / 11242	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	POS	IN	4
13850 / 12707	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	POS	IN	4
14000 / 12857	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	POS	IN	4
15350 / 14206	DEF	AT Eggerella 3 (local marker)	POS	IN	4
15650 / 14506	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	POS	IN	4
16830 / 15685	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	POS	IN	4
17520 / 16375	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	POS	IN	4
17580 / 16435	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	POS	IN	4
17730 / 16585	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	POS	IN	4
18150 / 17005	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	POS	IN	4
18270 / 17125	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	POS	IN	4
18300 / 17155	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	POS	IN	4
18630 / 17485	DEF	AT last sample examined	POS	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 327

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 Date of Summary: 01-MAR-1998 First Sample Examined: 2830 Lease Number: G13367 Source of Paleo: OPERATOR 18657 **Borehole MD:** 17512 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **API Well Number:** 608074017500 **Rkb Elevation:** 100 Paleo Report Num: 2 of 4 **Sample Range:** 2830 - 18630 975 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecoz	<u>zone</u>
2830 / 2830	DEF	AT first sample examined	DEF	IN	2
2950 / 2949	DEF	AT local marker foram increase	DEF	AT	3
3190 / 3189	DEF	AT reworked material	DEF	AT	3
3250 / 3249	DEF	AT limestone	DEF	AT	3
3370 / 3369	DEF	AT local marker foram increase	DEF	IN	3
3610 / 3609	DEF	AT faunal change (no faunal increase)	DEF	AT	3
4180 / 4179	DEF	AT reworked material	DEF	AT	3
4210 / 4209	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
4270 / 4269	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
4271 / 4270	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
4330 / 4329	DEF	AT faunal change (no faunal increase)	DEF	IN	3
4390 / 4389	DEF	AT faunal change (no faunal increase)	DEF	AT	3
4450 / 4449	DEF	AT local marker (general)	DEF	AT	3
5260 / 5259	DEF	AT faunal change (no faunal increase)	DEF	IN	3
5380 / 5379	DEF	AT limestone	DEF	AT	5
5680 / 5678	DEF	AT local marker foram decrease	POS	AT	4
6040 / 6029	DEF	AT faunal change (no faunal increase)	DEF	AT	4
6100 / 6087	DEF	AT local marker foram increase	DEF	AT	4
6880 / 6804	DEF	AT local marker foram increase	DEF	AT	4
6940 / 6855	DEF	AT local marker foram decrease	POS	AT	4
7420 / 7240	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7810 / 7529	DEF	AT local marker foram increase	DEF	AT	4

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

328

Fcozone

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 Date of Summary: 01-MAR-1998 First Sample Examined: 2830 Lease Number: G13367 Source of Paleo: OPERATOR 18657 **Borehole MD:** Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 17512 Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **API Well Number:** 608074017500 **Rkb Elevation:** 100 Paleo Report Num: 2 of 4 **Sample Range:** 2830 - 18630 975 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

MD/IVD		Paleo Top Description		<u> </u>	cozone
8230 / 7842	DEF	AT local marker foram increase	DEF	AT	5
8290 / 7886	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
8560 / 8086	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9050 / 8450	DEF	AT cement	POS	AT	4
10970 / 9934	POS	AT local marker foram increase	DEF	IN	3
11210 / 10140	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11240 / 10166	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
11450 / 10355	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11690 / 10577	DEF	AT Bathysiphon fauna	DEF	AT	4
11870 / 10747	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12050 / 10920	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
12380 / 11242	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
12500 / 11360	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
13550 / 12407	DEF	AT local marker foram increase	DEF	IN	4
13760 / 12617	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
13820 / 12677	DEF	AT faunal change (no faunal increase)	DEF	AT	6
13849 / 12706	POS	AT condensed section	DEF	AT	6
13850 / 12707	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
13970 / 12827	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14000 / 12857	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
14300 / 13156	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
14570 / 13426	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
14750 / 13606	DEF	AT local marker foram increase	DEF	IN	4
15050 / 13906	DEF	AT faunal change (no faunal increase)	DEF	AT	4

This report contains public paleo reports only for the time period stated

Paleo Ton Description

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 329

Fcozone

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 Date of Summary: 01-MAR-1998 First Sample Examined: 2830 Lease Number: G13367 Source of Paleo: OPERATOR 18657 **Borehole MD:** Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 17512 Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **API Well Number:** 608074017500 **Rkb Elevation:** 100 Paleo Report Num: 2 of 4 **Sample Range:** 2830 - 18630 975 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

MD/IVD		Paleo Top Description		<u> </u>	cozone
15110 / 13966	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	4
15349 / 14205	POS	AT Eggerella 3 (local marker)	DEF	ΑT	5
15350 / 14206	POS	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	ΑT	5
15410 / 14266	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15590 / 14446	DEF	AT Bathysiphon fauna	DEF	AT	4
15620 / 14476	DEF	AT	DEF	IN	4
15650 / 14506	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	4
15980 / 14836	DEF	AT	DEF	AT	5
16010 / 14866	DEF	AT Bathysiphon fauna	DEF	AT	5
16250 / 15106	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
16370 / 15226	DEF	AT	DEF	ΑT	4
16500 / 15355	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
16620 / 15475	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
16710 / 15565	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
16830 / 15685	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
16950 / 15805	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
17310 / 16165	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
17340 / 16195	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
17370 / 16225	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
17520 / 16375	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
17580 / 16435	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	5
17640 / 16495	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	ΑT	5
17730 / 16585	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	ΑT	5
17850 / 16705	DEF	AT faunal change (no faunal increase)	DEF	AT	4

This report contains public paleo reports only for the time period stated

Paleo Ton Description

GEOLOGIC 02-FEB-2011

330

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 Date of Summary: 01-MAR-1998 First Sample Examined: 2830 Lease Number: G13367 Source of Paleo: OPERATOR **Borehole MD:** 18657 17512 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **API Well Number:** 608074017500 **Rkb Elevation:** 100 Paleo Report Num: 2 of 4 **Sample Range:** 2830 - 18630 975 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

MD / TVD		Paleo Top Description		Ecoz	zone
18030 / 16885	DEF	AT transported shelf fauna	DEF	AT	4
18149 / 17004	POS	AT condensed section	DEF	IN	5
18150 / 17005	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
18270 / 17125	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	IN	5
18330 / 17185	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	IN	5
18360 / 17215	DEF	AT	DEF	AT	5
18630 / 17485	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 331

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 2830 Date of Summary: 09-MAR-1998 First Sample Examined: Lease Number: G13367 Source of Paleo: OPERATOR 18657 **Borehole MD:** 17512 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **API Well Number:** 608074017500 **Rkb Elevation:** 100 Paleo Report Num: 3 of 4 **Sample Range:** 2830 - 18630 975 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
2830 / 2830	DEF	AT first sample examined	DEF	AT
3310 / 3309	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
3520 / 3519	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8230 / 7842	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
8290 / 7886	DEF	IN Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
12020 / 10891	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
12050 / 10920	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12950 / 11807	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
12980 / 11837	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13550 / 12407	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13880 / 12737	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
14030 / 12887	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
16470 / 15325	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
16620 / 15475	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17460 / 16315	DEF	AT sample gap top	DEF	AT
17519 / 16374	DEF	AT sample gap bottom	DEF	AT
17520 / 16375	POS	AT Lower Pliocene (Zanclian) Sphenolithus grandis	DEF	AT
18450 / 17305	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT
18510 / 17365	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18630 / 17485	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 332

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 161 2830 Date of Summary: 09-MAR-1998 First Sample Examined: Lease Number: G13367 Source of Paleo: OPERATOR 18657 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 17512 Drilling Operator: PENNZENERGY EXPLORATION AND PRODUCTION LLC **API Well Number:** 608074017500 **Rkb Elevation:** 100 Paleo Report Num: 4 of 4 975 **Sample Range:** 2830 - 18630 Water Depth: Public Info Code: Y 08-FEB-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, paleo done by Therese Dunn, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
2830 / 2830	DEF	AT first sample examined	DEF	AT
3310 / 3309	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
3520 / 3519	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
5500 / 5499	DEF	AT reworked material	DEF	AT
8230 / 7842	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
8290 / 7886	DEF	IN Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
12020 / 10891	POS	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
12050 / 10920	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12950 / 11807	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
12980 / 11837	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13550 / 12407	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13880 / 12737	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
14030 / 12887	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
16470 / 15325	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
16620 / 15475	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17460 / 16315	DEF	AT sample gap top	DEF	AT
17519 / 16374	DEF	AT sample gap bottom	DEF	AT
17520 / 16375	POS	IN Lower Pliocene (Zanclian) Sphenolithus grandis	DEF	AT
18450 / 17305	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT
18510 / 17365	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18630 / 17485	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

**PAGE:** 333

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 172	Date of Summary: 20-AUG-1998	First Sample Examined:	0
Lease Number: G14221	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14441
Well Name: B001	Paleo Done By: OPERATOR	Borehole TVD:	11402
API Well Number: 608074018200	Drilling Operator: SHELL OFFSHORE INC	Rkb Elevation:	130
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	693
Public Info Code: Y 04-JUN-2008	Ecozone Ea MMS: Y	Paleo ID:	001

**Remark:** Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ē	<u>Ecozone</u>
8220 / 6251	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
10170 / 7551	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
12600 / 9706	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	POS	AT	4
13555 / 10573	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
14080 / 11062	DEF	AT	DEF	IN	4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 334

0

14649

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 172 Date of Summary: 04-JUN-1999 First Sample Examined:

Lease Number: G14221 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: B002 Paleo Done By: OPERATOR Borehole TVD: 12608

API Well Number: 608074018401 Drilling Operator: SHELL OFFSHORE INC Rkb Elevation: 130

Paleo Report Num:1 of 1Sample Range:0 - 0Water Depth:693

Public Info Code: Y 23-JAN-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

12760 / 10719 DEF IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 335

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 172 Date of Summary: 30-MAR-1999 First Sample Examined: 11700 Lease Number: G14221 Source of Paleo: OPERATOR **Borehole MD:** 13655 Well Name: B003 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 12578 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074019700 **Rkb Elevation:** 130 Paleo Report Num: 1 of 2 **Sample Range:** 11700 - 13655 663 Water Depth: Public Info Code: Y 05-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

### Remark:

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
11700 / 10695	DEF	AT first sample examined	DEF	IN	3
11730 / 10725	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11759 / 10754	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	4
11760 / 10755	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	ΑT	4
11790 / 10785	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	ΑT	4
11910 / 10904	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	4
12230 / 11219	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	ΑT	4
12280 / 11268	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	4
12510 / 11493	DEF	IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	4
12910 / 11874	DEF	AT out-of-place section	DEF	ΑT	4
12920 / 11884	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	4
12950 / 11912	DEF	IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	4
13010 / 11969	DEF	AT drilling material	DEF	ΑT	4
13380 / 12317	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
13655 / 12578	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

PAGE: 336

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 172 Date of Summary: 19-MAY-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14221 **Borehole MD:** 13655 Well Name: B003 Paleo Done By: OPERATOR **Borehole TVD:** 12578 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074019700 **Rkb Elevation:** 130 Paleo Report Num: 2 of 2 Sample Range: 0 - 0 663 Water Depth: Public Info Code: Y 05-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
11790 / 10785	DEF AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF AT
11865 / 10859	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT
12280 / 11268	DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT
12290 / 11278	DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
13480 / 12412	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 337

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 200	Date of Summary: 23-JUN-1998	First Sample Examined:	3158
Lease Number: G15852	Source of Paleo: OPERATOR	Borehole MD:	13752
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	13143
API Well Number: 608074018100	Drilling Operator: HESS CORPORATION	Rkb Elevation:	82
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 3158 - 13750	Water Depth:	1731
Public Info Code: Y 13-JUN-2008	Ecozone Eq MMS: Y	Paleo ID:	002

### Remark:

MD / TVD		Paleo Top Description		Ec	ozone
3158 / 3158	DEF	AT first sample examined	POS	AT	5
3200 / 3200	DEF	AT	DEF	AT	5
4850 / 4850	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
5210 / 5210	POS	IN Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	5
8630 / 8338	DEF	AT	DEF	IN	5
8810 / 8498	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
11030 / 10560	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
11120 / 10647	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
11180 / 10704	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
12650 / 12111	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	IN	5
12710 / 12167	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
13070 / 12505	DEF	AT Arenaceous fauna (local marker)	DEF	IN	5
13310 / 12730	DEF	AT local marker planktic foram increase	DEF	IN	5
13490 / 12898	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	IN	5
13640 / 13038	POS	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	IN	5
13730 / 13122	DEF	AT Bathysiphon fauna	DEF	IN	5
13750 / 13141	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011

338

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 200 Date of Summary: 23-JUN-1998 First Sample Examined: 3158 Lease Number: G15852 Source of Paleo: OPERATOR **Borehole MD:** 13752 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13143 **Drilling Operator: HESS CORPORATION API Well Number:** 608074018100 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 3158 - 13750 1731 Water Depth: Public Info Code: Y 13-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
3158 / 3158	DEF	AT first sample examined	DEF	AT
3200 / 3200	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
8630 / 8338	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
8690 / 8391	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8810 / 8498	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11030 / 10560	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11960 / 11453	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
12650 / 12111	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
12710 / 12167	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
13490 / 12898	POS	IN Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
13750 / 13141	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 339

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 200 Date of Summary: 10-MAR-1999 First Sample Examined: 2431 Lease Number: G15852 Source of Paleo: OPERATOR **Borehole MD:** 12570 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12567 **Drilling Operator:** HESS CORPORATION **API Well Number:** 608074019600 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 2431 - 12570 945 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 11-MAR-2009 Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2431 / 2431	DEF AT first sample examined	POS AT 5
2432 / 2432	DEF AT cement	POS AT 5
3120 / 3120	DEF AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF AT 5
4440 / 4440	POS IN Middle Pleistocene (Ionian) Trimosina "A"	DEF AT 5
5190 / 5189	DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF AT 5
7830 / 7829	POS AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF AT 5
7950 / 7949	DEF AT	DEF IN 5
8280 / 8279	POS AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF IN 5
10410 / 10408	DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF IN 5
11400 / 11397	POS AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF IN 5
12570 / 12567	DEF AT last sample examined	DEF IN 5

GEOLOGIC 02-FEB-2011 PAGE: 340

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 200 Date of Summary: 10-MAR-1999 First Sample Examined: 2431 Lease Number: G15852 Source of Paleo: OPERATOR **Borehole MD:** 12570 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12567 **Drilling Operator: HESS CORPORATION API Well Number:** 608074019600 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 2431 - 12570 945 Water Depth: Public Info Code: Y 11-MAR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2431 / 2431	DEF AT first sample examined	DEF AT
3150 / 3150	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT
7380 / 7379	POS AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT
7950 / 7949	DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF AT
7980 / 7979	DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT
8250 / 8249	DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
10530 / 10528	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
11790 / 11787	POS AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
12480 / 12477	DEF AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF AT
12570 / 12567	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 341

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 200 Date of Summary: 16-DEC-1999 First Sample Examined: 7903 Lease Number: G15852 Source of Paleo: OPERATOR **Borehole MD:** 14560 12712 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator: HESS CORPORATION API Well Number:** 608074021100 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 7903 - 14560 1736 Water Depth: Public Info Code: Y 27-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		<u>Ecoz</u>	one
7903 / 7582	DEF	AT first sample examined	DEF	AT	5
8830 / 8275	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
9040 / 8439	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
9280 / 8630	DEF	AT	DEF	AT	5
11560 / 10475	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
12160 / 10937	DEF	AT	DEF	AT	5
13090 / 11643	DEF	AT	DEF	IN	5
13120 / 11665	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	IN	5
13930 / 12253	DEF	AT	DEF	AT	5
14500 / 12668	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
14560 / 12712	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

342

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 200 Date of Summary: 16-DEC-1999 First Sample Examined: 7903 Lease Number: G15852 Source of Paleo: OPERATOR **Borehole MD:** 14560 12712 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator: HESS CORPORATION API Well Number:** 608074021100 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7903 - 14560 1736 Water Depth: Public Info Code: Y 27-NOV-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7903 / 7582	DEF	AT first sample examined	DEF	AT
8830 / 8275	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
8860 / 8297	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9220 / 8581	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11560 / 10475	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12280 / 11028	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13060 / 11620	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
13120 / 11665	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
13960 / 12275	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
14020 / 12318	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
14510 / 12676	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
14560 / 12712	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 343

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 22-APR-1998 First Sample Examined: 12370 Lease Number: G09216 Source of Paleo: OPERATOR **Borehole MD:** 22186 Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22134 **Drilling Operator: HESS CORPORATION API Well Number:** 608074017200 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 12370 - 22170 Water Depth: 1464 Public Info Code: Y 17-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

### Remark:

MD / TVD		Paleo Top Description		Eco:	zone
12370 / 12340	DEF	AT first sample examined	POS	AT	5
12371 / 12341	DEF	AT cement	POS	AT	5
13090 / 13060	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
13240 / 13210	DEF	AT	DEF	AT	5
13720 / 13689	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
13930 / 13899	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
16030 / 15989	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
16270 / 16228	DEF	AT Bathysiphon fauna	DEF	AT	5
16630 / 16587	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
16810 / 16766	DEF	AT Bathysiphon fauna	DEF	IN	5
16930 / 16886	DEF	AT foram flood	DEF	IN	5
17200 / 17155	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
17258 / 17212	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
17259 / 17213	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
17260 / 17214	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
17530 / 17484	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
18010 / 17964	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
18250 / 18204	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
18310 / 18264	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
18638 / 18591	DEF	AT gouge	DEF	AT	6
18639 / 18592	DEF	AT Upper Oligocene (Chattian) Globigerina sellii	DEF	AT	6
18640 / 18593	DEF	AT Upper Oligocene (Chattian) Globorotalia opima nana	DEF	AT	6

GEOLOGIC 02-FEB-2011

344

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 22-APR-1998 First Sample Examined: 12370 Lease Number: G09216 Source of Paleo: OPERATOR **Borehole MD:** 22186 Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22134 **Drilling Operator: HESS CORPORATION API Well Number:** 608074017200 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 12370 - 22170 1464 Water Depth: Public Info Code: Y 17-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		Eco	zone
18730 / 18683	POS	AT anhydrite	DEF	AT	6
18731 / 18684	DEF	AT salt	DEF	AT	6
19480 / 19432	DEF	AT base of salt	DEF	AT	6
19570 / 19522	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
21670 / 21619	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	6
22170 / 22119	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 345

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 22-APR-1998 12370 First Sample Examined: Lease Number: G09216 Source of Paleo: OPERATOR 22186 **Borehole MD:** Well Name: 005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22134 **Drilling Operator: HESS CORPORATION API Well Number:** 608074017200 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 12370 - 22170 Water Depth: 1464 Public Info Code: Y 17-APR-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, 19510=absence of salt, analysis at 19680 based on sidewall cores

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12370 / 12340	DEF	AT first sample examined	DEF	AT
12940 / 12910	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
13210 / 13180	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
13360 / 13330	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13960 / 13929	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
14170 / 14138	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
15250 / 15213	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
16030 / 15989	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
16870 / 16826	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17080 / 17035	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17380 / 17334	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
17800 / 17754	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
18040 / 17994	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18070 / 18024	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
18340 / 18294	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
18370 / 18323	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
18640 / 18593	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
18760 / 18713	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT
18850 / 18803	DEF	AT salt	DEF	AT
19510 / 19462	POS	AT base of salt	DEF	AT
19680 / 19632	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
21220 / 21170	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 346

003

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 215 Date of Summary: 22-APR-1998 First Sample Examined: 12370

Lease Number:G09216Source of Paleo:OPERATORBorehole MD:22186Well Name:005Paleo Done By:PALEO-DATA, INC.Borehole TVD:22134

API Well Number: 608074017200 Drilling Operator: HESS CORPORATION Rkb Elevation: 85
Paleo Report Num: 2 of 2 Sample Range: 12370 - 22170 Water Depth: 1464

Public Info Code: Y 17-APR-2008 Ecozone Eq MMS:

MD / TVD Paleo Top Description Ecozone

21640 / 21590 DEF AT Upper Miocene (Tortonian) Discoaster bollii DEF AT 22170 / 22119 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 347

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 25-FEB-1999 First Sample Examined: 8218 Lease Number: G09216 Source of Paleo: OPERATOR **Borehole MD:** 22133 Well Name: 006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22012 **Drilling Operator: HESS CORPORATION API Well Number:** 608074018700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 8218 - 22133 1464 Water Depth: Public Info Code: Y 27-JAN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Ec	<u>ozone</u>
8218 / 8215	DEF	AT first sample examined	POS	AT	5
8219 / 8216	DEF	AT cement	POS	AT	5
8360 / 8357	DEF	AT	DEF	AT	5
8480 / 8477	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
9350 / 9328	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
10880 / 10786	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11960 / 11848	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
14330 / 14216	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14870 / 14756	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
15075 / 14961	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
15110 / 14996	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
15170 / 15056	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
15290 / 15176	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
15590 / 15476	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
15740 / 15626	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
15770 / 15656	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
16340 / 16226	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
16370 / 16256	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
17870 / 17756	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
19640 / 19525	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
20180 / 20064	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6
20330 / 20214	DEF	AT	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

348

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 25-FEB-1999 First Sample Examined: 8218 Lease Number: G09216 Source of Paleo: OPERATOR **Borehole MD:** 22133 Well Name: 006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22012 **Drilling Operator: HESS CORPORATION API Well Number:** 608074018700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 8218 - 22133 1464 Water Depth: Public Info Code: Y 27-JAN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD /	<u>TVD</u>	<u>Paleo Top Description</u>		Eco <sub>2</sub>	zone
21530 / 2	21411 DEF	AT	DEF	AT	6
21560 / 2	21441 POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	6
22133 / 2	22012 DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 349

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 25-FEB-1999 First Sample Examined: 8218 Lease Number: G09216 Source of Paleo: OPERATOR **Borehole MD:** 22133 Well Name: 006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22012 **Drilling Operator: HESS CORPORATION API Well Number:** 608074018700 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 8218 - 22133 Water Depth: 1464 Public Info Code: Y 27-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8218 / 8215	DEF	AT first sample examined	DEF	AT
8480 / 8477	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10040 / 9983	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11990 / 11877	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12560 / 12446	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
14180 / 14066	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
14270 / 14156	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
14870 / 14756	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
15020 / 14906	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
15050 / 14936	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
15080 / 14966	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
15230 / 15116	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
15320 / 15206	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
15410 / 15296	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
15530 / 15416	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
15560 / 15446	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
15680 / 15566	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15770 / 15656	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16490 / 16376	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
17030 / 16916	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT
18500 / 18386	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
19040 / 18925	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus (increase)	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

350

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 215 Date of Summary: 25-FEB-1999 8218 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G09216 22133 **Borehole MD:** Well Name: 006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22012 **Drilling Operator: HESS CORPORATION API Well Number:** 608074018700 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 8218 - 22133 Water Depth: 1464 Public Info Code: Y 27-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 002

MD / TVD		Paleo Top Description		<u>Ecozone</u>
19550 / 19435	DEF	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
19670 / 19555	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
19880 / 19764	DEF	AT out-of-place section	DEF	AT
19970 / 19854	POS	IN Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
21560 / 21441	POS	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
22133 / 22012	DEF	AT last sample examined	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 351

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GB215Date of Summary:13-MAR-2001First Sample Examined:0Lease Number:G09216Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:21158

Well Name: 008 Paleo Done By: OPERATOR Borehole TVD: 20882

API Well Number: 608074020101 Drilling Operator: HESS CORPORATION Rkb Elevation: 82

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 1457

Public Info Code: Y 26-JUN-2009 Ecozone Eq MMS: Paleo ID: 001

Remark: Calcareous nannofossil report

<u> </u>	Paleo Top Description	<u>Ecozone</u>
18136 / 18080	DEF IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF AT
18485 / 18429	DEF AT salt	DEF AT
19840 / 19751	DEF AT base of salt	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 352

0

18175

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 216 Date of Summary: 17-OCT-2001 First Sample Examined:

Lease Number:G14224Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:

Well Name: 004 Paleo Done By: OPERATOR Borehole TVD: 16147

API Well Number: 608074022600 Drilling Operator: HESS CORPORATION Rkb Elevation: 82

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 1481

Public Info Code: Y 14-JAN-2011 Ecozone Eq MMS: Paleo ID: 001

Remark: Calcareous nannofossil report, in=sand

<u> MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
17036 / 15332	DEF IN Upper Miocene (Tortonian) Catinaster coalitus	DEF AT
17710 / 15804	DEF IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 353

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 243 2368 Date of Summary: 06-NOV-2006 First Sample Examined: Lease Number: G23280 Source of Paleo: OPERATOR 18398 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17455 **Drilling Operator: HESS CORPORATION API Well Number:** 608074027800 **Rkb Elevation:** 82 **Sample Range:** 2368 - 18397 1229 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
2368 / 2368	DEF	AT first sample examined	DEF	IN	5
2669 / 2669	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	IN	5
2670 / 2670	POS	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	IN	5
2880 / 2880	DEF	AT	DEF	ΑT	3
3870 / 3870	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	ΑT	3
3899 / 3899	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	IN	5
3900 / 3900	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	IN	5
3960 / 3960	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	5
4080 / 4080	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
4110 / 4110	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
4170 / 4170	DEF	AT	DEF	ΑT	3
4260 / 4260	DEF	AT anhydrite	DEF	ΑT	3
4350 / 4350	DEF	AT salt	DEF	ΑT	3
14579 / 14177	DEF	AT base of salt	POS	ΑT	3
14580 / 14178	POS	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	ΑT	3
14610 / 14204	DEF	AT	DEF	ΑT	5
15419 / 14898	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	ΑT	5
15420 / 14899	POS	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	ΑT	5
15690 / 15131	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	ΑT	5
15840 / 15260	DEF	AT out-of-place section	DEF	ΑT	5
15960 / 15363	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	ΑT	5
16049 / 15439	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 354

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 243	Date of Summary: 06-NOV-2006	First Sample Examined: 2368	
Lease Number: G23280	Source of Paleo: OPERATOR	Borehole MD: 18398	
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD: 17455	
API Well Number: 608074027800	Drilling Operator: HESS CORPORATION	Rkb Elevation: 82	
Paleo Report Num: 1 of 1	Sample Range: 2368 - 18397	Water Depth: 1229	
Public Info Code: Y 14-MAR-2010	Ecozone Ea MMS: Y	Paleo ID: 001	

MD / TVD	Paleo Top Description		Ec	ozone
16050 / 15440	DEF AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
16110 / 15492	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
17040 / 16291	DEF AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
18397 / 17454	DEF AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 355

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 243 Date of Summary: 18-OCT-2006 14040 First Sample Examined: Lease Number: G23280 Source of Paleo: OPERATOR 24075 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22434 **Drilling Operator: HESS CORPORATION API Well Number: 608074027801 Rkb Elevation:** 82 **Sample Range:** 14040 - 24075 1224 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description			<u>Ecozone</u>
14040 / 12911	DEF	AT first sample examined	DEF	AT	•
14041 / 12912	DEF	IN salt	DEF	AT	•
15030 / 13808	DEF	AT base of salt	DEF	IN	5
15060 / 13837	DEF	AT out-of-place section	DEF	IN	5
15270 / 14038	DEF	AT base of salt	DEF	AT	5
15299 / 14065	POS	AT out-of-place section	DEF	AT	5
15300 / 14066	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	IN	5
15659 / 14409	POS	AT out-of-place section	DEF	AT	5
15660 / 14410	DEF	AT local marker floral increase	DEF	IN	5
16140 / 14868	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
16410 / 15125	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	IN	5
16620 / 15326	POS	AT transported outer shelf facies	POS	IN.	5
16650 / 15354	DEF	AT out-of-place section	POS	IN	5
17580 / 16241	DEF	AT	DEF	IN	5
17910 / 16556	POS	AT transported outer shelf facies	POS	IN.	5
18000 / 16642	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	POS	IN.	5
18090 / 16728	DEF	AT	DEF	IN	5
18403 / 17026	POS	AT out-of-place section	DEF	AT	5
18404 / 17027	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
18630 / 17243	POS	AT transported outer shelf facies	POS	IN	5
19710 / 18273	DEF	AT	DEF	IN	5
19889 / 18444	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	IN	5

GEOLOGIC 02-FEB-2011

356

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 243 Date of Summary: 18-OCT-2006 14040 First Sample Examined: Lease Number: G23280 Source of Paleo: OPERATOR 24075 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22434 **Drilling Operator: HESS CORPORATION API Well Number:** 608074027801 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 14040 - 24075 1224 Water Depth:

Public Info Code: Y 14-MAR-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>Ecozone</u>
19890 / 18445	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
19949 / 18501	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
19950 / 18502	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
20160 / 18702	DEF	AT	DEF	ΑT	5
20310 / 18845	POS	AT transported outer shelf facies	POS	ΑT	5
20880 / 19387	DEF	AT	DEF	ΑT	4
21000 / 19502	DEF	AT	DEF	ΑT	5
21150 / 19645	DEF	AT	DEF	IN	5
21390 / 19874	DEF	AT	DEF	ΑT	6
21600 / 20074	DEF	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	ΑT	6
21870 / 20332	DEF	AT	DEF	ΑT	4
22110 / 20561	DEF	AT	DEF	ΑT	6
22230 / 20675	POS	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
22440 / 20875	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
23220 / 21619	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	ΑT	6
24075 / 22434	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

357

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 260 Date of Summary: 22-JAN-1998 First Sample Examined: 8523 Lease Number: G07461 Source of Paleo: OPERATOR **Borehole MD:** 17964 Well Name: A007 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16002 **Drilling Operator: HESS CORPORATION API Well Number:** 608074017900 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 8523 - 17962 1646 Water Depth: Public Info Code: Y 16-FEB-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8523 / 8301	DEF	AT first sample examined	DEF	AT
8524 / 8302	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12560 / 11597	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
13100 / 12047	DEF	IN Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
16160 / 14544	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
17510 / 15632	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17600 / 15705	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17962 / 16000	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 358

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 341 Date of Summary: 10-JAN-1999 First Sample Examined: 4220 Lease Number: G15879 Source of Paleo: OPERATOR **Borehole MD:** 21158 Well Name: HB001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20206 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019100 **Rkb Elevation:** 74 Paleo Report Num: 1 of 3 **Sample Range:** 4220 - 21158 2015 Water Depth: Public Info Code: Y 07-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Ecoz	zone
4220 / 4220	DEF	AT first sample examined	POS	AT	4
4640 / 4640	DEF	AT	DEF	AT	4
5420 / 5419	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
5570 / 5569	DEF	AT	DEF	IN	3
6440 / 6439	DEF	AT	DEF	AT	3
6890 / 6889	DEF	AT	DEF	AT	1
7880 / 7879	DEF	AT	DEF	AT	4
8480 / 8479	DEF	AT	DEF	AT	5
8510 / 8509	DEF	AT	DEF	AT	4
8570 / 8569	DEF	AT	DEF	AT	5
8690 / 8689	DEF	AT	DEF	AT	4
19280 / 18697	POS	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	POS	AT	4
19370 / 18769	DEF	AT	DEF	AT	4
19880 / 19178	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
20390 / 19589	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
20420 / 19613	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
20630 / 19781	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
20720 / 19853	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	4
21158 / 20206	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 359

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 341 Date of Summary: 01-APR-1999 First Sample Examined: 4220 Lease Number: G15879 Source of Paleo: OPERATOR **Borehole MD:** 21158 Well Name: HB001 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 20206 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019100 **Rkb Elevation:** 74 Paleo Report Num: 2 of 3 **Sample Range:** 4220 - 21158 2015 Water Depth: Public Info Code: Y 07-MAR-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
4220 / 4220	DEF	AT first sample examined	DEF	AT
4700 / 4700	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
5420 / 5419	POS	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
7700 / 7699	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa T.R.	DEF	AT
10550 / 10549	POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
12740 / 12739	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
13790 / 13788	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
14360 / 14358	POS	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
14900 / 14898	POS	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
15620 / 15615	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16430 / 16381	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
16790 / 16686	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
16850 / 16735	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18380 / 17973	POS	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
19250 / 18673	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
19280 / 18697	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
19490 / 18865	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
19880 / 19178	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
19910 / 19202	POS	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
20090 / 19347	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
20240 / 19468	POS	AT Lower Pliocene (Zanclian) Discoaster challengeri	DEF	AT
20810 / 19926	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

**PAGE:** 360

21158

20206

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 341 Date of Summary: 01-APR-1999 First Sample Examined: 4220

Lease Number:G15879Source of Paleo:OPERATORBorehole MD:Well Name:HB001Paleo Done By:BUGWARE, INC.Borehole TVD:

API Well Number: 608074019100 Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC Rkb Elevation: 74

Paleo Report Num: 2 of 3 Sample Range: 4220 - 21158 Water Depth: 2015

Public Info Code:Y 07-MAR-2009Ecozone Eq MMS:Paleo ID:002

MD / TVD Paleo Top Description Ecozone

21140 / 20191 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 361

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 341 Date of Summary: 24-MAY-1999 First Sample Examined: 4220 Lease Number: G15879 Source of Paleo: OPERATOR **Borehole MD:** 21158 Well Name: HB001 Paleo Done By: OPERATOR **Borehole TVD:** 20206 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019100 **Rkb Elevation:** 74 Paleo Report Num: 3 of 3 **Sample Range:** 4220 - 21158 2015 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 07-MAR-2009 Paleo ID: 003

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
4220 / 4220	DEF	AT first sample examined	DEF	AT	
5420 / 5419	DEF	IN Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	4
5421 / 5420	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT	
10280 / 10279	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
10550 / 10549	POS	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT	4
12740 / 12739	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	4
13730 / 13728	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	4
14900 / 14898	DEF	IN Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT	4
16190 / 16163	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
16700 / 16611	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	4
16820 / 16710	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	4
19280 / 18697	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	4
19910 / 19202	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	4
20390 / 19589	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
20420 / 19613	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
20810 / 19926	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	4
21158 / 20206	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

362

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 341 Date of Summary: 01-FEB-1999 First Sample Examined: 16500 Lease Number: G15879 Source of Paleo: OPERATOR 22900 **Borehole MD:** Well Name: HB001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 22697 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019101 **Rkb Elevation:** 74 Paleo Report Num: 1 of 3 **Sample Range:** 16500 - 22890 2015 Water Depth: Public Info Code: Y 22-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
16500 / 16481	DEF	AT	DEF	AT	0
16620 / 16598	DEF	AT sand	DEF	AT	
17220 / 17180	DEF	AT	DEF	AT	4
17250 / 17210	DEF	AT	DEF	AT	0
17460 / 17413	DEF	AT sand	DEF	AT	
20490 / 20351	POS	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	
20520 / 20381	DEF	AT	DEF	AT	4
20790 / 20643	DEF	AT	DEF	AT	0
20910 / 20759	DEF	AT	DEF	AT	4
21059 / 20904	DEF	AT reworked material	DEF	AT	
21060 / 20905	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
21150 / 20993	DEF	AT	DEF	AT	0
21180 / 21022	DEF	AT sand	DEF	AT	
21780 / 21605	DEF	AT	DEF	ΑT	4
22080 / 21896	DEF	AT	DEF	ΑT	4
22110 / 21926	POS	AT local marker planktic foram increase	DEF	ΑT	4
22200 / 22013	DEF	AT	DEF	ΑT	0
22380 / 22189	DEF	AT	DEF	ΑT	4
22470 / 22276	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
22530 / 22335	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
22710 / 22511	DEF	AT	DEF	AT	0

GEOLOGIC 02-FEB-2011

363

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 341 First Sample Examined: 16500 Date of Summary: 19-MAR-1999 Lease Number: G15879 Source of Paleo: OPERATOR **Borehole MD:** 22900 Well Name: HB001 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 22697 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019101 **Rkb Elevation:** 74 Paleo Report Num: 2 of 3 **Sample Range:** 16500 - 22890 2015 Water Depth: Public Info Code: Y 22-MAR-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD/TVD		Paleo Top Description		<u>Ecozone</u>
16500 / 16481	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16620 / 16598	POS .	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
16950 / 16918	POS .	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
17160 / 17122	DEF .	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
17190 / 17151	DEF .	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
19140 / 19042	POS .	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
20130 / 20002	POS .	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
20520 / 20381	DEF .	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
20521 / 20382	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
21630 / 21459	DEF .	AT reworked material	DEF	AT
21720 / 21546	POS .	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
22170 / 21984	DEF .	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
22470 / 22276	DEF .	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
22590 / 22393	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
22770 / 22569	POS	AT Lower Pliocene (Zanclian) Discoaster challengeri	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 364

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 341 Date of Summary: 25-MAY-1999 First Sample Examined: 16500 Lease Number: G15879 Source of Paleo: OPERATOR **Borehole MD:** 22900 Well Name: HB001 Paleo Done By: OPERATOR **Borehole TVD:** 22697 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019101 **Rkb Elevation:** 74 Paleo Report Num: 3 of 3 **Sample Range:** 15090 - 22900 2015 Water Depth: Public Info Code: Y 22-MAR-2009 Ecozone Eq MMS: N Paleo ID: 003

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
16500 / 16481	DEF AT first sample examined	DEF AT
17070 / 17035	DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
17190 / 17151	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
20490 / 20351	DEF IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT
20491 / 20352	DEF IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
21630 / 21459	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
22470 / 22276	DEF AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF AT
22530 / 22335	POS AT Lower Pliocene (Zanclian) Discoaster challengeri	DEF AT
22900 / 22697	DEF AT last sample examined	DEF AT

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 365

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 342 20200 Date of Summary: 17-JAN-2007 First Sample Examined: Lease Number: G23302 Source of Paleo: OPERATOR 31803 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 31733 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028400 **Rkb Elevation:** 86 Sample Range: 20200 - 31804 Paleo Report Num: 1 of 1 Water Depth: 1153 Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Andros Deep Prospect, consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see

report for details

Pales Ton Description

MD/TVD		Paleo Top Description		트	cozone
20200 / 20170	DEF	AT first sample examined	DEF	AT	5
20230 / 20200	DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT	5
20260 / 20230	DEF	IN Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
20320 / 20289	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT	5
20350 / 20319	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	5
20769 / 20734	DEF	AT reworked material	DEF	AT	5
20770 / 20735	DEF	AT local marker floral increase	DEF	ΑT	5
21220 / 21181	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	ΑT	5
21250 / 21211	DEF	AT local marker floral increase	DEF	ΑT	6
21550 / 21509	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	6
21610 / 21568	DEF	IN Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT	6
21640 / 21598	POS	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT	6
22240 / 22194	POS	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	ΑT	6
22419 / 22371	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	6
22420 / 22372	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	AT	6
22450 / 22402	DEF	AT Lower Oligocene (Rupelian) Discoaster nodifer	DEF	AT	6
22949 / 22898	POS	AT out-of-place section	DEF	AT	6
22950 / 22899	POS	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	6
23190 / 23137	DEF	AT local marker floral increase	DEF	ΑT	6
23580 / 23524	POS	AT reworked material	DEF	AT	6
24090 / 24030	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT	6

GEOLOGIC 02-FEB-2011

PAGE: 366

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 342 Date of Summary: 17-JAN-2007 First Sample Examined: 20200 Lease Number: G23302 Source of Paleo: OPERATOR **Borehole MD:** 31803 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 31733 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028400 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 Sample Range: 20200 - 31804 1153 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD/TVD		Paleo Top Description		<u>E</u>	cozone
24119 / 24059	POS	AT out-of-place section	DEF	AT	6
24120 / 24060	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	6
24240 / 24179	POS	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT	6
24300 / 24239	POS	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT	6
24330 / 24269	DEF	IN salt	DEF	AT	6
31804 /	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

367

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 344	Date of Summary: 03-JAN-2001	First Sample Examined:	4221
Lease Number: G08232	Source of Paleo: OPERATOR	Borehole MD:	6690
Well Name: 003	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	6690
API Well Number: 608074022300	Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC	Rkb Elevation:	85
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 4221 - 6690	Water Depth:	2120
Public Info Code: Y 25-JUL-2008	Ecozone Ea MMS:	Paleo ID:	002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
4221 / 4221	DEF AT first sample examined	DEF AT
4320 / 4320	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT
6690 / 6690	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 368

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 344	Date of Summary: 04-JAN-2001	First Sample Examined:	4221
Lease Number: G08232	Source of Paleo: OPERATOR	Borehole MD:	6690
Well Name: 003	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	6690
API Well Number: 608074022300	<b>Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC</b>	Rkb Elevation:	85
Paleo Report Num: 2 of 2	<b>Sample Range:</b> 4221 - 6690	Water Depth:	2120
Public Info Code: Y 25-JUL-2008	Ecozone Eq MMS: Y	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
4221 / 4221	DEF	AT first sample examined	DEF	AT	5
4530 / 4530	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
6690 / 6690	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

369

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 Date of Summary: 04-JAN-2001 6690 First Sample Examined: Lease Number: G08232 Source of Paleo: OPERATOR 11882 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11870 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074022301 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 6690 - 11880 2120 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		Eco	<u>ozone</u>
6690 / 6685	DEF AT first sample examined	DEF	AT	5
7740 / 7734	DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8280 / 8274	POS IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	4
10770 / 10762	DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
11430 / 11421	DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11880 / 11868	DEF AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

370

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 6690 Date of Summary: 30-JAN-2001 First Sample Examined: Lease Number: G08232 Source of Paleo: OPERATOR 11882 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11870 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074022301 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 6690 - 11880 2120 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
6690 / 6685	DEF	AT first sample examined	DEF	AT
7980 / 7974	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
9420 / 9413	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
9660 / 9653	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
11070 / 11062	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11460 / 11451	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11640 / 11630	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11880 / 11868	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 371

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 Date of Summary: 23-APR-2002 First Sample Examined: 8010 Lease Number: G08232 Source of Paleo: OPERATOR **Borehole MD:** 24525 Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24499 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023800 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 8010 - 24525 2312 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 25-JUL-2008 Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	cozone
8010 / 8009	DEF	AT first sample examined	DEF	AT	4
9990 / 9987	DEF	AT	DEF	AT	5
10050 / 10047	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	5
10410 / 10407	DEF	AT	DEF	ΑT	4
10710 /10707	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	ΑT	4
14080 / 14073	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
14110 / 14103	DEF	AT	DEF	ΑT	5
15370 / 15361	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
16600 / 16587	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
18730 / 18712	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
20610 / 20592	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	5
21090 / 21072	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
22050 / 22031	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
22380 / 22360	DEF	AT	DEF	IN	5
22860 / 22839	DEF	AT	POS	ΑT	6
23160 / 23139	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	ΑT	6
23370 / 23348	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
23580 / 23557	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
24525 / 24499	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011 PAGE: 372

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 8010 Date of Summary: 23-APR-2002 First Sample Examined: Lease Number: G08232 Source of Paleo: OPERATOR 24525 **Borehole MD:** Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24499 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023800 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 8010 - 24525 2312 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8010 / 8009	DEF	AT first sample examined	DEF	AT
9840 / 9838	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
12640 / 12636	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
14170 / 14163	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
15280 / 15271	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16000 / 15990	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16600 / 16587	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
16900 / 16885	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18760 / 18742	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
20380 / 20362	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
20970 / 20952	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
21510 / 21491	POS	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
21990 /21971	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
22890 / 22869	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
22980 / 22959	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
23370 / 23348	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
23700 / 23677	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
24300 / 24275	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
24525 / 24499	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 373

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 Date of Summary: 29-MAY-2002 First Sample Examined: 20150 Lease Number: G08232 Source of Paleo: OPERATOR 25177 **Borehole MD:** Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24699 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023801 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 20150 - 25177 2312 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 25-JUL-2008 Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

	MD / TVD		Paleo Top Description		Ecoz	<u>zone</u>
20	150 /20132	DEF	AT first sample examined	DEF	AT	5
20	151 /20133	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
20	480 /20462	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
21	710 / 21636	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
22	430 /22260	DEF	AT	DEF	IN	5
22	460 / 22285	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
23	570 / 23252	DEF	AT faunal change (no faunal increase)	DEF	AT	6
24	110 /23734	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	6
24	500 / 24077	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
24	890 / 24429	DEF	AT faunal change (no faunal increase)	DEF	AT	5
25	177 / 24699	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 374

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 20150 Date of Summary: 29-MAY-2002 First Sample Examined: Lease Number: G08232 Source of Paleo: OPERATOR 25177 **Borehole MD:** Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24699 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023801 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 20150 - 25177 2312 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
20150 / 20132	DEF	AT first sample examined	DEF	AT
20151 / 20133	POS	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
20360 / 20342	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
21110 /21080	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
21470 / 21420	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
22370 / 22210	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
23630 / 23305	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
23780 / 23439	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
24290 / 23894	DEF	IN Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
24800 / 24345	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
25177 / 24699	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 375

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 15380 Date of Summary: 10-JUL-2002 First Sample Examined: Lease Number: G08232 Source of Paleo: OPERATOR 23435 **Borehole MD:** Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22501 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023802 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 15380 - 23435 2312 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
15380 / 15371	DEF	AT first sample examined	DEF	AT	5
15680 / 15667	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
16640 / 16609	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
18710 / 18659	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
20840 / 20467	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	5
21110 / 20676	DEF	AT	DEF	IN	5
21290 / 20816	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
21680 /21119	DEF	AT	DEF	ΑT	5
22370 / 21656	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
22760 / 21961	DEF	AT	POS	AT	6
23120 / 22247	DEF	AT	DEF	AT	5
23330 / 22416	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	5
23435 / 22501	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 376

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 15380 Date of Summary: 10-JUL-2002 First Sample Examined: Lease Number: G08232 Source of Paleo: OPERATOR 23435 **Borehole MD:** Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22501 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023802 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 15380 - 23435 2312 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15380 / 15371	DEF	AT first sample examined	DEF	AT
15381 / 15372	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16250 / 16223	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16640 / 16609	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18740 / 18688	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
20450 / 20164	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
21170 / 20722	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
21680 / 21119	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
22310 / 21610	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
22760 / 21961	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
23300 / 22391	DEF	IN Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
23435 / 22501	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 377

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 Date of Summary: 03-JAN-2001 11880 First Sample Examined: Lease Number: G33195 Source of Paleo: OPERATOR 21024 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19615 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074022302 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 11880 - 21024 2120 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
11880 / 11869	DEF	AT first sample examined	DEF	AT
12090 / 12076	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
12690 / 12655	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
13560 / 13429	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
14490 / 14193	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
14600 / 14280	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
14760 / 14406	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
14880 / 14502	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
15060 / 14646	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
15180 / 14742	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
15240 / 14790	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
15660 / 15122	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
15840 / 15264	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
15930 / 15335	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
15990 / 15383	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
16260 / 15599	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16320 / 15647	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
16380 / 15695	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16560 / 15842	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
16620 / 15892	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16830 / 16067	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
16920 / 16141	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT

GEOLOGIC 02-FEB-2011

378

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 Date of Summary: 03-JAN-2001 First Sample Examined: 11880 Lease Number: G33195 Source of Paleo: OPERATOR **Borehole MD:** 21024 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19615 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074022302 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 11880 - 21024 2120 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 003

<u> </u>		Paleo Top Description		<u>Ecozone</u>
17280 / 1642	7 DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
17310 / 1645	1 DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
17460 / 1657	1 DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
17670 / 1673	6 DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
20730 / 1933	4 DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
21024 / 1961	5 DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 379

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 344 Date of Summary: 04-JAN-2001 First Sample Examined: 11880 Lease Number: G33195 Source of Paleo: OPERATOR **Borehole MD:** 21024 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19615 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074022302 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 11880 - 21024 2120 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
11880 / 11869	DEF	AT first sample examined	DEF	AT	5
12090 / 12076	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
13530 / 13403	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	ΑT	5
13560 / 13429	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
14670 / 14335	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
14910 / 14526	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
15060 / 14646	DEF	AT	DEF	ΑT	6
15210 / 14766	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
15360 / 14885	DEF	AT	DEF	IN	5
16320 / 15647	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	5
16680 / 15942	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	5
16830 / 16067	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
16995 / 16201	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	5
17040 / 16236	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5
17430 / 16547	DEF	AT	DEF	ΑT	5
17460 / 16571	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	ΑT	5
19410 / 18134	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	ΑT	5
20490 / 19107	DEF	AT	DEF	IN	5
20700 / 19305	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	ΑT	5
21024 / 19615	DEF	AT last sample examined	DEF	ΑT	5

**GEOLOGIC** 02-FEB-2011 PAGE: 380

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 385 Date of Summary: 21-SEP-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G10350 25500 **Borehole MD:** Well Name: LL001 Paleo Done By: OPERATOR **Borehole TVD:** 24709 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074021304 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 0 - 0 2632 Sample Range: Water Depth: Public Info Code: Y 17-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD/TVD		Paleo Top Description		<b>Ecozone</b>
22250 / 21573	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
22310 / 21630	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
22490 / 21802	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
23690 / 22947	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
23780 / 23033	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT
23870 / 23118	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT
24320 / 23550	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT
24380 / 23608	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
25020 / 24234	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
25349 / 24559	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
25350 / 24560	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT
25410 / 24620	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
25470 / 24679	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 381

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 385 Date of Summary: 14-DEC-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G17358 **Borehole MD:** 11740 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 11670 **Drilling Operator:** NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074021300 **Rkb Elevation:** 85 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 2430 Water Depth: Public Info Code: Y 30-NOV-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5510 / 5509	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
8990 / 8988	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT
9800 / 9791	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT

GEOLOGIC 02-FEB-2011

382

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 29-DEC-1997 18230 First Sample Examined: Lease Number: G10350 Source of Paleo: OPERATOR 25342 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24511 **Drilling Operator:** NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074016601 **Rkb Elevation:** 82 Paleo Report Num: 1 of 4 **Sample Range:** 18230 - 25280 2663 Water Depth: Public Info Code: Y 09-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram report for sidetrack 1, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
18230 / 17734	DEF	AT first sample examined	DEF	AT	5
18920 / 18387	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
21110 / 20468	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
23630 / 22862	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
23930 / 23147	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
25160 / 24334	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
25280 / 24451	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011

383

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 29-DEC-1997 First Sample Examined: 18230 Lease Number: G10350 Source of Paleo: OPERATOR **Borehole MD:** 25342 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24511 **Drilling Operator:** NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074016601 **Rkb Elevation:** 82 Paleo Report Num: 2 of 4 **Sample Range:** 18230 - 25280 2663 Water Depth: Public Info Code: Y 09-JAN-2008 Ecozone Eq MMS: N Paleo ID: 003

Remark: Calcareous nannofossil report for sidetrack 1

MD / TVD		Paleo Top Description		<b>Ecozone</b>
18230 / 17734	DEF	AT first sample examined	DEF	AT
18770 / 18243	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
21110 / 20468	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
22190 / 21493	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
23660 / 22890	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
23960 / 23175	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
24260 / 23462	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
25100 / 24275	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
25280 / 24451	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 384

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 28-JUL-1998 25332 First Sample Examined: Lease Number: G10350 Source of Paleo: OPERATOR **Borehole MD:** 25342 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24511 **Drilling Operator:** NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074016601 **Rkb Elevation:** 82 Paleo Report Num: 3 of 4 **Sample Range:** 25332 - 27730 2663 Water Depth: Public Info Code: Y 09-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

**Remark:** Foram report for extension

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
25332 / 24502	DEF	AT first sample examined	DEF	IN	5
25480 /	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
25630 /	DEF	AT	DEF	AT	6
25781 /	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
26800 /	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
27130 /	DEF	AT	DEF	ΑT	5
27340 /	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	5
27730 /	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

385

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 28-JUL-1998 First Sample Examined: 25332 Lease Number: G10350 Source of Paleo: OPERATOR **Borehole MD:** 25342 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24511 **Drilling Operator:** NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074016601 **Rkb Elevation:** 82 Paleo Report Num: 4 of 4 **Sample Range:** 25332 - 27730 2663 Water Depth: Public Info Code: Y 09-JAN-2008 Ecozone Eq MMS: N Paleo ID: 005

Remark: Calcareous nannofossil report for extension

MD / TVD		Paleo Top Description		<b>Ecozone</b>
25332 / 24502	DEF	AT first sample examined	DEF A	T
25810 /	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF A	T
26560 /	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF A	T
27100 /	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF A	T
27340 /	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF A	T
27730 /	DEF	AT last sample examined	DEF A	T

GEOLOGIC 02-FEB-2011

386

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 28-JUL-1998 First Sample Examined: 24993 Lease Number: G10350 Source of Paleo: OPERATOR **Borehole MD:** 27864 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 26978 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074016602 **Rkb Elevation:** 72 Paleo Report Num: 1 of 2 **Sample Range:** 24993 - 26750 2663 Water Depth: Public Info Code: Y 06-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD	Paleo Top Description		<b>Ecozone</b>
24993 / 24171	DEF AT first sample examined	DEF IN	<b>1</b> 5
25260 / 24432	DEF IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF IN	<b>1</b> 5
25530 / 24696	DEF AT	POS A	T 6
25710 / 24872	DEF AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF A	T 6
26750 / 25889	DEF AT last sample examined	DEF A	T 6

GEOLOGIC 02-FEB-2011

PAGE: 387

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 28-JUL-1998 24993 First Sample Examined: Lease Number: G10350 Source of Paleo: OPERATOR 27864 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 26978 **Drilling Operator:** NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074016602 **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 24993 - 26750 2663 Water Depth: Public Info Code: Y 06-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
24990 / 24168	DEF	AT first sample examined	DEF	AT
25800 / 24960	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
26460 / 25605	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
26750 / 25889	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

388

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 25-MAR-1999 First Sample Examined: 4110 Lease Number: G10350 Source of Paleo: OPERATOR 22045 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 21555 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074018800 **Rkb Elevation:** 82 2520 Paleo Report Num: 1 of 2 **Sample Range:** 4110 - 22045 Water Depth: Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 21750=Early Pliocene fauna, probably out of place, 22020=Late Miocene fauna, probably out of place, foram species abundance and diversity chart

available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
4110 / 4110	DEF	AT first sample examined	POS	AT	5
4111 / 4111	DEF	AT cement	POS	ΑT	5
4320 / 4319	DEF	AT	DEF	ΑT	5
5430 / 5428	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	ΑT	5
6810 / 6807	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	5
12750 / 12662	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
17070 / 16754	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
18750 / 18356	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
21090 / 20608	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
21749 / 21260	POS	AT out-of-place section	DEF	ΑT	5
21750 / 21261	POS	IN Lower Pliocene	DEF	ΑT	5
22019 / 21529	POS	AT out-of-place section	DEF	ΑT	5
22020 / 21530	POS	IN Upper (Late) Miocene	DEF	ΑT	5
22045 / 21555	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

389

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 29-MAR-1999 First Sample Examined: 4110 Lease Number: G10350 Source of Paleo: OPERATOR 22045 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 21555 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074018800 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 4110 - 22045 2520 Water Depth: Public Info Code: Y 28-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4110 / 4110	DEF	AT first sample examined	DEF	AT
4800 / 4799	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa oceanica (flood)	DEF	AT
5280 / 5278	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9780 / 9777	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
12720 / 12634	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
12750 / 12662	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
14700 / 14504	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
17010 / 16697	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17700 / 17355	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
18840 / 18441	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
21090 / 20608	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
21540 / 21053	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
22045 / 21555	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

390

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 386 Date of Summary: 25-MAR-1999 19270 First Sample Examined: Lease Number: G10350 Source of Paleo: OPERATOR 22134 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 21625 Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC **API Well Number:** 608074018801 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 19270 - 22134 2520 Water Depth: Public Info Code: Y 14-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecc	<u>ozone</u>
19270 / 18849	DEF	AT first sample examined	DEF	AT	5
19271 / 18850	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
21090 / 20610	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
21809 / 21310	POS	AT out-of-place section	DEF	AT	5
21810 / 21311	POS	IN Lower Pliocene	DEF	AT	5
21869 / 21368	POS	AT out-of-place section	DEF	AT	5
21870 / 21369	POS	AT Upper (Late) Miocene	DEF	AT	5
22134 / 21625	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 391

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 386	Date of Summary: 29-MAR-1999	First Sample Examined:	19270
Lease Number: G10350	Source of Paleo: OPERATOR	Borehole MD:	22134
Well Name: 002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	21625
API Well Number: 608074018801	Drilling Operator: NEWFIELD EXPLORATION GULF COAST LLC	Rkb Elevation:	82
Paleo Report Num: 2 of 2	<b>Sample Range:</b> 19270 - 22134	Water Depth:	2520
Public Info Code: Y 14-APR-2009	Ecozone Eq MMS:	Paleo ID:	001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
19270 / 18849	DEF AT first sample examined	DEF AT
19500 / 19069	POS IN Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
21090 / 20610	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
21480 / 20990	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
22134 / 21625	DEF AT last sample examined	DEF AT

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 392

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 426 18300 Date of Summary: 04-MAR-2002 First Sample Examined: Lease Number: G08241 Source of Paleo: OPERATOR 24000 **Borehole MD:** Well Name: A018 Paleo Done By: OPERATOR **Borehole TVD:** 21706 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074010302 **Rkb Elevation:** 170 Paleo Report Num: 1 of 2 **Sample Range:** 18300 - 24000 Water Depth: 2862 Public Info Code: Y 10-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Paleo done by Ragan Biostrat, 21840=Globorotalia cf margaritae semi-regional event, foram species abundance and diversity chart available, see

report for details

Pales Ton Description

	Paleo Top Description		Eco	zone
DEF	AT first sample examined	DEF	AT	
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT local marker foram increase	DEF	AT	4
POS	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT local marker foram increase	DEF	AT	5
DEF	AT faunal change (no faunal increase)	POS	IN	2
DEF	AT faunal change (no faunal increase)	POS	AT	3
DEF	AT faunal change (no faunal increase)	DEF	IN	3
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT local marker foram increase	DEF	AT	4
DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT faunal change (no faunal increase)	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT faunal change (no faunal increase)	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT local marker foram increase	DEF	AT	5
POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
	DEF	DEF AT first sample examined DEF AT faunal change (no faunal increase) DEF AT local marker foram increase POS IN Upper Pliocene (Gelasian) Globorotalia miocenica DEF AT faunal change (no faunal increase) DEF AT local marker foram increase DEF AT faunal change (no faunal increase) DEF AT local marker foram increase DEF AT local marker foram increase DEF AT Upper Pliocene (Piacenzian) Globorotalia multicamerata DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF AT faunal change (no faunal increase)	DEFAT first sample examinedDEFDEFAT faunal change (no faunal increase)DEFDEFAT local marker foram increaseDEFPOSIN Upper Pliocene (Gelasian) Globorotalia miocenicaDEFDEFAT faunal change (no faunal increase)DEFDEFAT local marker foram increaseDEFDEFAT faunal change (no faunal increase)POSDEFAT faunal change (no faunal increase)DEFDEFAT faunal change (no faunal increase)DEFDEFAT local marker foram increaseDEFDEFAT upper Pliocene (Piacenzian) Globorotalia multicamerataDEFDEFAT upper Pliocene (Piacenzian) Globoquadrina altispiraDEFDEFAT upper Pliocene (Piacenzian) Globoquadrina altispiraDEFDEFAT faunal change (no faunal increase)DEFDEFAT faunal change (no faunal increase)DEF	DEFAT first sample examinedDEFATDEFAT faunal change (no faunal increase)DEFATDEFAT local marker foram increaseDEFATPOSIN Upper Pliocene (Gelasian) Globorotalia miocenicaDEFATDEFAT faunal change (no faunal increase)DEFATDEFAT local marker foram increaseDEFATDEFAT faunal change (no faunal increase)POSINDEFAT faunal change (no faunal increase)POSATDEFAT faunal change (no faunal increase)DEFATDEFAT faunal change (no faunal increase)DEFATDEFAT local marker foram increaseDEFATDEFAT local marker foram increaseDEFATDEFAT loper Pliocene (Piacenzian) Globorotalia multicamerataDEFATDEFAT gunal change (no faunal increase)DEFATDEFAT faunal change (no faunal increase)

GEOLOGIC 02-FEB-2011 PAGE: 393

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 426 Date of Summary: 04-MAR-2002 First Sample Examined: 18300 Lease Number: G08241 Source of Paleo: OPERATOR Borehole MD: 24000

Lease Number:G08241Source of Paleo:OPERATORBorehole MD:24000Well Name:A018Paleo Done By:OPERATORBorehole TVD:21706

API Well Number: 608074010302 Drilling Operator: SHELL OFFSHORE INC Rkb Elevation: 170 Paleo Report Num: 1 of 2 Sample Range: 18300 - 24000 Water Depth: 2862

Public Info Code: Y 10-MAR-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	cozone
20960 / 19540	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21190 / 19703	DEF	AT local marker foram increase	DEF	AT	4
21230 / 19731	DEF	AT faunal change (no faunal increase)	DEF	AT	5
21510 / 19919	DEF	AT local marker foram increase	DEF	ΑT	5
21600 / 19975	DEF	AT local marker foram increase	DEF	ΑT	5
21810 / 20113	DEF	AT local marker foram increase	DEF	ΑT	5
21840 / 20135	DEF	AT local marker planktic foram increase	DEF	ΑT	5
22170 / 20389	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
22440 / 20601	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
22560 / 20697	DEF	AT local marker foram increase	DEF	ΑT	5
22830 / 20909	DEF	AT local marker foram increase	DEF	ΑT	5
22940 / 20993	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
23130 / 21133	DEF	AT local marker foram increase	DEF	ΑT	4
23190 / 21175	DEF	AT local marker foram increase	DEF	ΑT	5
23250 / 21217	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
23430 / 21340	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
23770 / 21565	DEF	AT local marker foram increase	DEF	AT	5
23790 / 21578	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
23850 / 21615	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
24000 / 21706	DEF	AT last sample examined	DEF	ΑT	5

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 394

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 426 18300 Date of Summary: 09-MAR-2002 First Sample Examined: Lease Number: G08241 Source of Paleo: OPERATOR 24000 **Borehole MD:** Well Name: A018 Paleo Done By: OPERATOR **Borehole TVD:** 21706 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074010302 **Rkb Elevation:** 170 Paleo Report Num: 2 of 2 **Sample Range:** 18300 - 24000 2862 Water Depth: Public Info Code: Y 10-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report done by Morin Biostratigraphic Services, 23970=Discoaster sp 7, nannospecies abundance and diversity chart available,

see report for details

Paleo Ton Description

		Paleo Top Description		Ecozone
18300 / 17507	DEF	AT first sample examined	DEF	AT
18360 / 17562	DEF	AT sample gap top	DEF	AT
18600 / 17776	DEF	AT sample gap bottom	DEF	AT
18720 / 17878	DEF	AT local marker floral increase	DEF	AT
18721 / 17879	DEF	IN Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
18990 / 18099	DEF	AT local marker floral increase	DEF	AT
19060 / 18153	DEF	AT reworked material	DEF	AT
19230 / 18283	DEF	AT local marker floral increase	DEF	AT
19530 / 18511	DEF	AT local marker floral increase	DEF	AT
19920 / 18802	DEF	AT reworked material	DEF	AT
20580 / 19271	DEF	AT local marker floral increase	DEF	AT
20870 / 19476	DEF	AT local marker floral increase	DEF	AT
21600 / 19975	DEF	AT local marker floral increase	DEF	AT
21630 / 19993	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
21810 / 20113	DEF	AT local marker floral increase	DEF	AT
22560 / 20697	DEF	AT local marker floral increase	DEF	AT
22620 / 20745	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
23220 / 21196	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
23340 /21278	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
23400 /21319	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
23460 / 21360	DEF	AT local marker floral increase	DEF	AT

GEOLOGIC

02-FEB-2011 PAGE: 395

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 426 Date of Summary: 09-MAR-2002 First Sample Examined: 18300 Source of Paleo: OPERATOR Lease Number: G08241 **Borehole MD:** 24000 21706 Well Name: A018 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074010302 **Rkb Elevation:** 170 Paleo Report Num: 2 of 2 **Sample Range:** 18300 - 24000 2862 Water Depth:

Public Info Code: Y 10-MAR-2010 Ecozone Eq MMS:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
23490 / 21381	DEF AT Lower Pliocene (Zanclian) Sphenolithus grandis	DEF AT
23610 / 21462	DEF AT local marker floral increase	DEF AT
23830 / 21603	DEF AT local marker floral increase	DEF AT
23880 / 21633	DEF AT Upper Miocene (Messinian) Discoaster berggrenii	DEF AT
23970 / 21688	POS AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF AT
24000 / 21706	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 396

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 434 17030 Date of Summary: 12-DEC-2006 First Sample Examined: Lease Number: G21395 Source of Paleo: OPERATOR 20072 **Borehole MD:** Well Name: 001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 20071 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028100 **Rkb Elevation:** 82 Paleo Report Num: 1 of 3 **Sample Range:** 17030 - 20072 2509 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Norman Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
17030 / 17029	DEF	AT first sample examined	DEF	AT
17031 / 17030	POS	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
18290 / 18289	POS	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
18320 / 18319	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
18350 / 18349	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18650 / 18649	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
18920 / 18919	POS	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
19160 / 19159	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
19250 / 19249	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
19400 / 19399	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
20072 / 20071	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

397

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 434 Date of Summary: 03-JAN-2007 First Sample Examined: 17030 Lease Number: G21395 Source of Paleo: OPERATOR **Borehole MD:** 20072 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20071 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028100 **Rkb Elevation:** 82 **Sample Range:** 17030 - 20090 Paleo Report Num: 2 of 3 2509 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: Norman Prospect

MD / TVD		Paleo Top Description		Ecc	zone
17030 / 17029	DEF	AT first sample examined	POS	AT	4
17031 / 17030	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	POS	AT	4
17032 / 17031	POS	AT out-of-place section	POS	AT	4
17060 / 17059	DEF	AT local marker foram decrease	POS	AT	4
17090 / 17089	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	POS	AT	4
17120 / 17119	POS	AT out-of-place section	POS	AT	4
17180 / 17179	DEF	AT	DEF	AT	4
17300 / 17299	DEF	AT local marker planktic foram increase	DEF	AT	4
17420 / 17419	DEF	AT	DEF	AT	5
17450 / 17449	DEF	AT	DEF	AT	4
17480 / 17479	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	4
17570 / 17569	DEF	AT local marker foram increase	DEF	AT	5
17600 / 17599	DEF	AT	DEF	AT	4
17630 / 17629	DEF	AT local marker foram decrease	DEF	AT	4
17690 / 17689	DEF	AT local marker foram increase	DEF	AT	4
18290 / 18289	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
18380 / 18379	DEF	AT local marker foram decrease	DEF	AT	4
18410 / 18409	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	4
18500 / 18499	DEF	AT local marker foram decrease	DEF	AT	4
18620 / 18619	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	AT	4
18650 / 18649	DEF	AT local marker foram increase	DEF	AT	4
19100 / 19099	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4

GEOLOGIC 02-FEB-2011

398

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 434 Date of Summary: 03-JAN-2007 First Sample Examined: 17030 Lease Number: G21395 Source of Paleo: OPERATOR **Borehole MD:** 20072 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20071 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028100 **Rkb Elevation:** 82 Paleo Report Num: 2 of 3 **Sample Range:** 17030 - 20090 2509 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 003

_	MD / TVD		Paleo Top Description		<u>E</u>	cozone
	19130 / 19129	POS	IN Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	4
	19220 / 19219	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
	19250 / 19249	POS	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	4
	19280 / 19279	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	4
	19880 / 19879	DEF	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	AT	4
	20000 / 19999	DEF	AT local marker foram decrease	DEF	ΑT	4
	20060 / 20059	DEF	AT last sample examined	DEF	ΑT	4

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 399

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 434 17060 Date of Summary: 25-JAN-2007 First Sample Examined: Lease Number: G21395 Source of Paleo: OPERATOR 20072 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20071 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028100 **Rkb Elevation:** 82 Paleo Report Num: 3 of 3 **Sample Range:** 17060 - 20072 2509 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Norman Prospect, consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for

MD / TVD		Paleo Top Description		E	cozone
17060 / 17059	DEF	AT first sample examined	DEF	AT	5
17300 / 17299	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
17360 / 17359	DEF	AT	DEF	AT	6
17420 / 17419	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
17450 / 17449	DEF	AT	DEF	IN	5
17570 / 17569	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	IN	5
17630 / 17629	DEF	AT	DEF	AT	4
18290 / 18289	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	IN	5
18320 / 18319	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	IN	5
18440 / 18439	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	IN	5
18650 / 18649	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	IN	5
18770 / 18769	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	IN	5
18890 / 18889	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	IN	5
19130 / 19129	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	IN	5
19160 / 19159	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	IN	5
19250 / 19249	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	5
19309 / 19308	POS	AT salt weld	DEF	IN	5
19310 / 19309	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	5
19340 / 19339	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	IN	5
19700 / 19699	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	IN	5
20072 / 20071	DEF	AT last sample examined	DEF	IN	5

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE:

400

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 434 17150 Date of Summary: 10-APR-2007 First Sample Examined: Lease Number: G21395 Source of Paleo: OPERATOR 27712 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 27705 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074028101 **Rkb Elevation:** 82 **Sample Range:** 17150 - 27180 2509 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Norman Prospect, consultant-integrated foram and nannofossil report, foram and nannofossil species abundance and diversity charts available, see

report for details

	Paleo Top Description		Eco	zone
DEF	AT first sample examined	DEF	AT	5
DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT	5
DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
DEF	AT	DEF	AT	5
DEF	AT	DEF	IN	5
DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	IN	5
DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	IN	5
POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	5
DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	IN	5
DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	IN	5
DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	5
POS	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	IN	5
DEF	AT	DEF	AT	5
DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	5
POS	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	5
POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	5
POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	5
	DEF DEF DEF DEF DEF DEF DEF DEF DEF DEF	AT first sample examined  AT Lower Pliocene (Zanclian) Ceratolithus acutus  AT Lower Pliocene (Zanclian) Globigerinoides mitra  AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)  AT Upper Miocene (Messinian) Discoaster quinqueramus  AT Upper Miocene (Messinian) Discoaster berggrenii  AT Upper Miocene (Messinian) Discoaster berggrenii  AT Upper Miocene (Messinian) Globorotalia juanai  AT Upper Miocene (Messinian) Globorotalia margaritae primitiva  AT Upper Miocene (Messinian) Reticulofenestra rotaria  AT Upper Miocene (Messinian) Discoaster berggrenii "A"  DEF AT Upper Miocene (Messinian) Discoaster loeblichii  POS AT Upper Miocene (Tortonian) Discoaster loeblichii  POS AT Upper Miocene (Tortonian) Catinaster mexicanus  IN Upper Miocene (Tortonian) Melonis pompilioides (increase)  AT Upper Miocene (Tortonian) Discoaster bollii  AT Upper Miocene (Tortonian) Discoaster hamatus	AT first sample examined DEF AT Lower Pliocene (Zanclian) Ceratolithus acutus DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra DEF DEF AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left) DEF DEF AT Upper Miocene (Messinian) Discoaster quinqueramus DEF DEF DEF AT DEF DEF AT DEF DEF AT Upper Miocene (Messinian) Discoaster berggrenii DEF DEF AT Upper Miocene (Messinian) Globorotalia juanai DEF DEF AT Upper Miocene (Messinian) Globorotalia margaritae primitiva DEF DEF AT Upper Miocene (Messinian) Reticulofenestra rotaria DEF DEF DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A" DEF DEF DEF DEF AT Upper Miocene (Tortonian) Discoaster loeblichii DEF DEF DEF DEF AT Upper Miocene (Tortonian) Discoaster calcaris DEF DEF DEF DEF DEF AT Upper Miocene (Tortonian) Discoaster mexicanus DEF DEF DEF DEF DEF DEF DEF AT Upper Miocene (Tortonian) Discoaster bollii DEF	DEF AT Inst sample examined DEF AT Lower Pliocene (Zanclian) Ceratolithus acutus DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra DEF AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left) DEF AT Upper Miocene (Messinian) Discoaster quinqueramus DEF AT Upper Miocene (Messinian) Discoaster quinqueramus DEF AT Upper Miocene (Messinian) Discoaster berggrenii DEF AT Upper Miocene (Messinian) Discoaster berggrenii DEF AT Upper Miocene (Messinian) Globorotalia juanai DEF IN DEF AT Upper Miocene (Messinian) Globorotalia margaritae primitiva DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A" DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A" DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A" DEF AT Upper Miocene (Tortonian) Discoaster loeblichii DEF AT Upper Miocene (Tortonian) Discoaster calcaris DEF AT Upper Miocene (Tortonian) Discoaster mexicanus DEF AT Upper Miocene (Tortonian) Discoaster berglichies (Increase) DEF AT Upper Miocene (Tortonian) Discoaster benjlicides (Increase) DEF AT Upper Miocene (Tortonian) Discoaster bollii

GEOLOGIC 02-FEB-2011

401

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 434 Date of Summary: 10-APR-2007 First Sample Examined: 17150

Lease Number: G21395 Source of Paleo: OPERATOR Borehole MD: 27712

Well Name: 001 Paleo Done By: PALEO-DATA, INC.

Borehole TVD: 27705

API Well Number: 608074028101 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION Rkb Elevation: 82
Paleo Report Num: 1 of 1 Sample Range: 17150 - 27180 Water Depth: 2509

Public Info Code: Y 14-MAR-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
21150 / 21144	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
21270 / 21264	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	ΑT	5
21540 / 21534	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	5
21630 / 21624	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
21690 / 21684	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
21719 / 21713	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	ΑT	5
21720 / 21714	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	ΑT	5
22230 / 22224	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	ΑT	5
22290 / 22284	POS	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	ΑT	5
22380 / 22374	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	ΑT	5
22440 / 22434	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	ΑT	5
24300 / 24294	DEF	AT salt	DEF	ΑT	5
24780 / 24774	DEF	AT base of salt	DEF	ΑT	5
24781 / 24775	DEF	AT local marker floral increase	DEF	ΑT	5
24840 / 24834	POS	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	ΑT	5
24900 / 24894	DEF	AT out-of-place section	DEF	ΑT	5
24930 / 24924	DEF	AT reworked material	DEF	ΑT	5
25079 / 25073	DEF	IN Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	ΑT	5
25080 / 25074	DEF	AT Lower Oligocene (Rupelian) Discoaster nodifer	DEF	ΑT	5
25140 / 25134	DEF	AT reworked material	DEF	ΑT	5
25170 / 25164	DEF	AT out-of-place section	DEF	ΑT	5
25230 / 25224	DEF	AT salt	DEF	ΑT	5
26610 / 26603	DEF	AT base of salt	DEF	ΑT	5
26670 / 26663	DEF	AT out-of-place section	DEF	ΑT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 402

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 434 Date of Summary: 10-APR-2007 First Sample Examined: 17150

Lease Number:G21395Source of Paleo:OPERATORBorehole MD:27712Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:27705

API Well Number: 608074028101 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION Rkb Elevation: 82

Paleo Report Num: 1 of 1 Sample Range: 17150 - 27180 Water Depth: 2509

Public Info Code: Y 14-MAR-2010 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVD Paleo Top Description

27711 / 27704 DEF AT last sample examined

DEF AT 5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

403

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 515	Date of Summary: 29-JUL-1999	First Sample Examined:	0
Lease Number: G20792	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10023
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD:	10022
API Well Number: 608074020500	Drilling Operator: MARATHON OIL COMPANY	Rkb Elevation:	90
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	3243
Public Info Code: Y 25-JUL-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5390 / 5390	DEF AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF AT
5750 / 5750	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF AT
6770 / 6770	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT
9050 / 9050	DEF AT Middle Pleistocene (Ionian) Trimosina "A"	DEF AT

GEOLOGIC

404

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 01-AUG-1999 First Sample Examined: 13520 Lease Number: G11528 Source of Paleo: OPERATOR **Borehole MD:** 21235 Well Name: SE001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 18818 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020900 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 13520 - 21235 3380 Water Depth: Public Info Code: Y 14-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

_	MD / TVD		Paleo Top Description		<b>Ecozone</b>
	13520 / 12762	DEF	AT first sample examined	DEF	AT
	15530 / 14293	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
	17570 / 15869	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
	19550 / 17436	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
	21235 / 18818	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

405

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 516	Date of Summary: 15-SEP-1999	First Sample Examined:	13520
Lease Number: G11528	Source of Paleo: OPERATOR	Borehole MD:	21235
Well Name: SE001	Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.	Borehole TVD:	18818
API Well Number: 608074020900	Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC	Rkb Elevation:	85
Paleo Report Num: 2 of 2	Sample Range: 13520 - 21230	Water Depth:	3380
Public Info Code: Y 14-SEP-2009	Ecozone Eq MMS: Y	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description			<u>Ecozone</u>
13520 / 12762	DEF	AT first sample examined	DEF	ΑT	
13521 / 12763	POS	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	ΑT	
15440 / 14223	DEF	AT	DEF	ΑT	3
15470 / 14247	DEF	AT local marker planktic foram increase	DEF	ΑT	4
15500 / 14270	DEF	AT local marker planktic foram increase	DEF	ΑT	4
15590 / 14340	DEF	AT	DEF	ΑT	5
15680 / 14410	DEF	AT	DEF	ΑT	3
15710 / 14434	DEF	AT	DEF	ΑT	4
15950 / 14622	DEF	AT	DEF	ΑT	3
16130 / 14763	DEF	AT	DEF	ΑT	4
17330 / 15682	POS	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	POS	ΑT	4
17360 / 15705	DEF	AT	DEF	ΑT	4
19910 / 17727	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
20150 / 17921	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
21235 / 18818	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 406

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 516	Date of Summary: 01-SEP-1999	First Sample Examined:	18000
Lease Number: G11528	Source of Paleo: OPERATOR	Borehole MD:	21920
Well Name: SE001	Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.	Borehole TVD:	19184
API Well Number: 608074020901	<b>Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC</b>	Rkb Elevation:	85
Paleo Report Num: 1 of 2	Sample Range: 18000 - 21900	Water Depth:	3380
Public Info Code: Y 20-SEP-2009	Ecozone Eg MMS: Y	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		Ec	ozone
18000 / 16207	DEF	AT first sample examined	DEF	AT	
19680 / 17390	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	
19740 / 17432	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21690 / 18989	DEF	AT local marker planktic foram increase	DEF	AT	4
21810 / 19091	DEF	AT gray shale	DEF	AT	4
21900 / 19167	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 407

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 01-SEP-1999 First Sample Examined: 18000 Lease Number: G11528 Source of Paleo: OPERATOR **Borehole MD:** 21920 Well Name: SE001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 19184 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020901 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 18000 - 21918 3380 Water Depth: Public Info Code: Y 20-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
18000 / 16207	DEF AT first sample examined	DEF AT
19080 / 16975	POS AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
19710 / 17411	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
21690 / 18989	POS AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
21918 / 19182	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

PAGE:

408

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 06-JAN-2001 First Sample Examined: 18990 Lease Number: G11528 Source of Paleo: OPERATOR 25823 **Borehole MD:** Well Name: SE001 Paleo Done By: OPERATOR **Borehole TVD:** 20983 **API Well Number: 608074020902 Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC Rkb Elevation:** 85 Water Depth: Paleo Report Num: 1 of 2 **Sample Range:** 18990 - 25823 3380 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y 002 Paleo ID:

Remark: Serrano Prospect done by Ragan Biostrat, 19530=at or below Globorotalia hirsuta, 20010=faunal increase at lower Globorotalia hirsuta, 21990=faunal increase with Globorotalia crassiformis coiling change from left to right, 22020=Globorotalia triangula (consistent), 25590=Globorotalia extremus, foram

species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
18990 / 16907	DEF	AT first sample examined	DEF	IN	3
19140 / 17026	DEF	AT faunal change (no faunal increase)	DEF	AT	2
19290 / 17147	DEF	AT faunal change (no faunal increase)	DEF	AT	4
19500 / 17319	DEF	AT faunal change (no faunal increase)	DEF	AT	5
19530 / 17344	DEF	IN local marker planktic foram increase	DEF	AT	5
19620 / 17419	DEF	AT local marker foram increase	DEF	AT	5
19740 / 17521	DEF	AT faunal change (no faunal increase)	DEF	AT	4
19920 / 17672	DEF	AT faunal change (no faunal increase)	DEF	AT	5
19950 / 17696	DEF	AT local marker foram increase	DEF	AT	5
20010 / 17744	DEF	AT local marker planktic foram increase	DEF	AT	5
20520 / 18122	DEF	AT faunal change (no faunal increase)	DEF	IN	3
20770 / 18300	DEF	AT local marker foram increase	DEF	AT	4
20830 / 18343	DEF	AT faunal change (no faunal increase)	DEF	AT	5
20980 / 18451	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21060 / 18508	DEF	AT faunal change (no faunal increase)	DEF	IN	3
21210 / 18616	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21270 / 18659	DEF	AT out-of-place section	DEF	AT	5
21300 / 18680	DEF	AT local marker foram increase	DEF	AT	5
21390 / 18745	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21480 / 18809	DEF	AT local marker foram increase	DEF	AT	4

**GEOLOGIC** 02-FEB-2011

409

20983

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 06-JAN-2001 First Sample Examined: 18990 Source of Paleo: OPERATOR Lease Number: G11528 **Borehole MD:** 25823

Well Name: SE001 Paleo Done By: OPERATOR **Borehole TVD:** 

**Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020902 **Rkb Elevation:** 85 3380 Water Depth:

Paleo Report Num: 1 of 2 **Sample Range:** 18990 - 25823

Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
21570 / 18873	DEF	AT faunal change (no faunal increase)	DEF	AT	5
21690 / 18957	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21930 / 19128	DEF	AT faunal change (no faunal increase)	DEF	AT	5
21990 / 19170	DEF	AT local marker planktic foram increase	DEF	AT	5
22020 / 19191	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
22110 / 19251	DEF	AT local marker foram increase	DEF	AT	5
22290 / 19357	DEF	AT faunal change (no faunal increase)	DEF	AT	4
22500 / 19459	DEF	AT faunal change (no faunal increase)	DEF	AT	5
22680 / 19542	DEF	AT local marker foram increase	DEF	AT	5
23130 / 19746	DEF	AT faunal change (no faunal increase)	DEF	AT	3
23250 / 19798	DEF	AT faunal change (no faunal increase)	DEF	IN	3
23280 / 19811	DEF	AT faunal change (no faunal increase)	DEF	AT	4
23730 / 20009	DEF	AT faunal change (no faunal increase)	DEF	AT	5
23760 / 20022	DEF	AT faunal change (no faunal increase)	DEF	AT	4
24540 / 20373	DEF	AT faunal change (no faunal increase)	DEF	AT	5
24660 / 20428	DEF	AT faunal change (no faunal increase)	DEF	AT	4
25170 / 20666	DEF	AT local marker foram increase	DEF	AT	4
25200 / 20681	DEF	AT faunal change (no faunal increase)	DEF	AT	5
25230 / 20695	DEF	AT local marker foram increase	DEF	AT	5
25380 / 20767	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
25381 / 20767	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	AT	5
25410 / 20781	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
25470 / 20810	DEF	AT local marker foram increase	DEF	AT	5
25530 / 20839	DEF	AT local marker foram increase	DEF	AT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 410

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 06-JAN-2001 First Sample Examined: 18990 Source of Paleo: OPERATOR Lease Number: G11528 **Borehole MD:** 25823 Well Name: SE001 Paleo Done By: OPERATOR **Borehole TVD:** 20983 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020902 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 18990 - 25823 3380 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD	Paleo Top Description	Ecozone	<u> </u>
25590 / 20868	POS AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF AT 5	
25740 / 20943	DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF AT 5	
25823 / 20984	DEF AT last sample examined	DEF AT 5	

GEOLOGIC 02-FEB-2011 PAGE: 411

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 17-JAN-2001 First Sample Examined: 18990 Lease Number: G11528 Source of Paleo: OPERATOR 25823 **Borehole MD:** Well Name: SE001 Paleo Done By: OPERATOR **Borehole TVD:** 20983 **API Well Number:** 608074020902 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 18990 - 25823 3380 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Serrano Prospect, calcareous nannofossil report done by Morin Biostratigraphic Services, 25590=R haqii increase, 25680=Discoaster cf surculus,

nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
18990 / 16907	DEF	AT first sample examined	DEF	AT
19470 / 17294	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
19920 / 17672	DEF	AT local marker floral increase	DEF	AT
20010 / 17744	DEF	AT reworked material	DEF	AT
20770 / 18300	DEF	AT local marker floral increase	DEF	AT
20771 / 18301	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
20920 / 18408	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
21960 / 19149	DEF	AT local marker floral increase	DEF	AT
22140 / 19270	DEF	AT local marker floral increase	DEF	AT
22530 / 19473	DEF	AT local marker floral increase	DEF	AT
22710 / 19556	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
25140 / 20652	DEF	AT local marker floral increase	DEF	AT
25350 / 20752	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
25590 / 20868	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
25680 /20913	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
25770 / 20957	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
25823 / 20984	DEF	AT last sample examined	DEF	AT

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 412

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 01-JAN-2001 First Sample Examined: 20550 Lease Number: G11528 Source of Paleo: OPERATOR **Borehole MD:** 24979 Well Name: SE001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 20961 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020903 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 20550 - 24979 3380 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
20730 / 18291	DEF IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
23490 / 20076	POS AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
24000 / 20370	POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT

**GEOLOGIC** 02-FEB-2011 PAGE: 413

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 01-FEB-2001 First Sample Examined: 20550 Lease Number: G11528 Source of Paleo: OPERATOR 24979 **Borehole MD:** Well Name: SE001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20961 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020903 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 20550 - 24960 3380 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
20550 / 18150	DEF	AT	DEF	AT	0
21330 / 18760	DEF	AT sand	DEF	AT	
21420 / 18825	DEF	AT faunal change (no faunal increase)	DEF	AT	
21450 / 18846	DEF	AT gray shale	DEF	AT	
21480 / 18867	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	
21540 / 18909	DEF	AT	DEF	AT	4
21570 / 18930	DEF	AT	DEF	AT	0
21840 / 19105	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21930 / 19159	DEF	AT	DEF	AT	0
22080 / 19248	DEF	AT	DEF	AT	4
22110 / 19265	DEF	AT	DEF	AT	0
22140 / 19282	DEF	AT	DEF	AT	4
22170 / 19300	DEF	AT	DEF	AT	0
22320 / 19387	DEF	AT sand	DEF	AT	
22380 / 19422	DEF	AT	DEF	AT	4
22410 / 19439	DEF	AT	DEF	AT	0
22440 / 19457	DEF	AT	DEF	AT	4
22470 / 19474	DEF	AT	DEF	AT	0
22950 / 19760	DEF	AT sand	DEF	AT	
23550 / 20111	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	
23610 / 20147	DEF	AT	DEF	AT	4
23640 / 20164	DEF	AT	DEF	AT	0

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE:

414

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 01-FEB-2001 First Sample Examined: 20550 Lease Number: G11528 Source of Paleo: OPERATOR 24979 **Borehole MD:** Well Name: SE001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20961 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074020903 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range: 20550 - 24960** 3380 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD	Paleo Top Description	<u>Ecozo</u>	one
23670 / 20182	DEF AT	DEF AT	4
23700 / 20199	DEF AT	DEF AT	0
24000 / 20370	DEF AT	DEF AT	4
24060 / 20405	DEF AT	DEF AT	0
24090 / 20423	DEF AT	DEF AT	4
24180 / 20475	DEF AT sand	DEF AT	4
24210 / 20493	DEF AT	DEF AT	0
24240 / 20511	DEF AT	DEF AT	4
24270 / 20529	DEF AT	DEF AT	0
24630 / 20746	DEF AT	DEF AT	4
24660 / 20764	DEF AT	DEF AT	0
24690 / 20783	DEF AT	DEF AT	4
24720 / 20801	DEF AT	DEF AT	0

GEOLOGIC 02-FEB-2011

PAGE:

415

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 19980 Date of Summary: 20-NOV-2002 First Sample Examined: Lease Number: G11528 Source of Paleo: OPERATOR 22708 **Borehole MD:** Well Name: SE003 Paleo Done By: OPERATOR **Borehole TVD:** 18804 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074024300 **Rkb Elevation:** 82 **Sample Range:** 19980 - 22710 3394 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report done by Morin Biostratigraphic Studies, 22710=above Upper Miocene Discoaster brouweri consistent, nannospecies

abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
19980 / 16833	DEF	AT first sample examined	DEF	AT
20130 / 16944	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
20610 / 17305	DEF	AT local marker floral increase	DEF	AT
20670 / 17350	DEF	AT local marker floral increase	DEF	AT
21059 / 17644	POS	AT reworked material	DEF	AT
21060 / 17645	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
21840 / 18214	DEF	AT local marker floral increase	DEF	AT
21990 / 18316	DEF	AT local marker floral increase	DEF	AT
22020 / 18336	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
22500 / 18662	DEF	AT local marker floral increase	DEF	AT
22710 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE:

416

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 19980 Date of Summary: 21-NOV-2002 First Sample Examined: Lease Number: G11528 Source of Paleo: OPERATOR 22708 **Borehole MD:** Well Name: SE003 Paleo Done By: OPERATOR **Borehole TVD:** 18804 **API Well Number:** 608074024300 **Drilling Operator: SHELL OFFSHORE INC Rkb Elevation:** 82 3394 Paleo Report Num: 2 of 2 **Sample Range:** 19980 - 22708 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Paleo done by Ragan Biostrat, 20130=faunal increase with Globorotalia hirsuta variety, 22470=faunal increase with Globorotalia crassaformis (dextral), foram species abundance and diversity chart available, see report for details

<u> </u>		Paleo Top Description		<u>Ec</u>	ozone
19980 / 16833	DEF	AT first sample examined	DEF	AT	
20100 / 16922	DEF	AT	DEF	AT	4
20130 / 16944	DEF	AT local marker planktic foram increase	DEF	AT	5
20220 / 17011	DEF	AT	DEF	AT	4
20610 / 17305	DEF	AT local marker foram increase	DEF	AT	5
20670 / 17350	DEF	AT local marker foram increase	DEF	AT	5
20880 / 17509	DEF	AT local marker foram increase	DEF	AT	5
21030 / 17623	DEF	AT local marker foram increase	DEF	AT	5
21180 / 17736	DEF	AT	DEF	AT	4
21420 / 17917	POS	AT local marker foram increase	DEF	AT	5
21450 / 17939	DEF	AT	DEF	AT	3
21600 / 18048	DEF	AT	DEF	AT	5
21630 / 18070	POS	AT local marker foram increase	DEF	AT	4
21900 / 18254	DEF	AT local marker foram increase	DEF	AT	4
22170 / 18438	DEF	AT local marker foram increase	DEF	AT	4
22200 / 18458	DEF	AT	DEF	AT	5
22470 / 18642	DEF	AT local marker planktic foram increase	DEF	AT	5
22708 / 18804	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 417

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 07-DEC-2002 20000 First Sample Examined: Lease Number: G11528 Source of Paleo: OPERATOR 28658 **Borehole MD:** Well Name: SE003 Paleo Done By: OPERATOR **Borehole TVD:** 22050 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074024301 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range: 20000 - 28658** 3394 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report done by Morin Biostratigraphic Studies, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
20000 / 17089	DEF	AT first sample examined	DEF	AT
20001 / 17090	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
20180 / 17231	DEF	AT local marker floral increase	DEF	AT
20990 / 17868	DEF	AT local marker floral increase	DEF	AT
21440 / 18198	DEF	AT local marker floral increase	DEF	AT
21530 / 18264	POS	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
22190 / 18683	DEF	AT local marker floral increase	DEF	AT
23450 / 19217	DEF	AT local marker floral increase	DEF	AT
24200 / 19541	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
24980 / 19881	DEF	AT local marker floral increase	DEF	AT
26630 / 20645	DEF	AT local marker floral increase	DEF	AT
26660 / 20660	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
26840 / 20756	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
27230 / 20996	DEF	AT local marker floral increase	DEF	AT
27500 / 21185	DEF	AT local marker floral increase	DEF	AT
28100 / 21612	DEF	AT local marker floral increase	DEF	AT
28280 / 21752	DEF	AT local marker floral increase	DEF	AT
28580 / 21989	DEF	AT local marker floral increase	DEF	AT
28658 / 22051	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

418

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 06-JAN-2003 First Sample Examined: 20000 28658 Lease Number: G11528 Source of Paleo: OPERATOR **Borehole MD:** Well Name: SE003 22050 Paleo Done By: OPERATOR **Borehole TVD:** API Well Number: 608074024301 **Drilling Operator: SHELL OFFSHORE INC Rkb Elevation:** 82 Paleo Report Num: 2 of 2 3394 Sample Range: 20000 - 28658 Water Depth: Public Info Code: Y 19-SEP-2010 002 **Ecozone Eg MMS:** Y Paleo ID:

Remark: Serrano Prospect, 20001=probably below Globorotalia hirsuta variety, 21290=out of place Oligocene fauna, 21980=Globorotalia crassiformis coiling change left to right, 22040=consistent Globorotalia triangula, 28658=still above Upper Pliocene Globoquadrina altispira, foram species abundance and diversity chart available, see report for details

MD / TVD Paleo Top Description **Ecozone** 20000 / 17089 DEF AT first sample examined DEF AT 5 5 IN Upper Pliocene (Gelasian) Globorotalia praehirsuta DEF 20001 / 17090 ΑT AT local marker foram increase DEF 5 20270 / 17302 AT 20360 / 17374 DEF AT ----DEF IN 3 DEF AT -----DEF AT 20420 / 17422 4 DEF AT -----DEF 20510 / 17493 AT 5 DEF AT -----DEF ΑT 0 20600 / 17565 DEF DEF AT -----20660 / 17613 ΑT 4 20690 / 17636 DEF AT -----DEF AT 3 3 DEF AT ----DEF IN 20870 / 17776 DEF AT -----DEF ΑT 3 20900 / 17799 20930 / 17822 DEF AT ----DEF AT 0 20990 / 17868 DEF AT ----DEF IN 3 DEF AT ----DEF 21080 / 17935 AT 4 21170 / 18002 DEF AT ----DEF AT 5 5 21230 / 18046 DEF AT local marker foram increase DEF ΑT 21290 / 18090 DEF AT out-of-place section DEF ΑT 5 5 DEF AT 21500 / 18242 DEF AT local marker foram increase 21980 / 18565 IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B" DEF ΑT 5 DEF AT AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B") 5 22040 / 18601

GEOLOGIC 02-FEB-2011 PAGE: 419

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GB516Date of Summary:06-JAN-2003First Sample Examined:20000Lease Number:G11528Source of Paleo:OPERATORBorehole MD:28658

Well Name: SE003 Paleo Done By: OPERATOR Borehole MD: 20050

Well Name: SE003 Paleo Done By: OPERATOR Borehole TVD: 22050

API Well Number: 608074024301 Drilling Operator: SHELL OFFSHORE INC Rkb Elevation: 82
Paleo Report Num: 2 of 2 Sample Range: 2000 - 28658 Water Depth: 3394

Public Info Code: Y 19-SEP-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		E	ozone
22190 / 18683	DEF	AT local marker foram increase	DEF	AT	5
22460 / 18814	DEF	AT local marker foram increase	DEF	AT	5
22970 / 19019	DEF	AT	DEF	AT	4
23120 / 19081	DEF	AT	DEF	AT	5
23180 / 19106	DEF	AT local marker foram increase	DEF	AT	5
23330 / 19168	DEF	AT local marker foram increase	DEF	AT	5
23450 / 19217	DEF	AT	DEF	AT	4
23510 / 19242	DEF	AT local marker foram increase	DEF	AT	4
23600 / 19280	DEF	AT	DEF	AT	5
24410 / 19634	DEF	AT local marker foram increase	DEF	AT	5
24590 / 19711	DEF	AT	DEF	AT	4
24740 / 19777	DEF	AT	DEF	AT	5
24950 / 19868	DEF	AT local marker foram increase	DEF	AT	5
25010 / 19894	DEF	AT local marker foram increase	DEF	AT	5
25340 / 20039	DEF	AT	DEF	AT	4
25520 / 20118	DEF	AT	DEF	AT	5
25850 / 20269	DEF	AT	DEF	AT	4
26060 / 20371	DEF	AT local marker foram increase	DEF	AT	4
26090 / 20386	DEF	AT	DEF	AT	5
26630 / 20645	DEF	AT local marker foram increase	DEF	AT	5
26690 / 20675	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
26840 / 20756	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
27560 / 21227	DEF	AT local marker foram increase	DEF	AT	5
28040 / 21568	DEF	AT local marker foram increase	DEF	AT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 420

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 516 Date of Summary: 06-JAN-2003 First Sample Examined: 20000

Lease Number:G11528Source of Paleo:OPERATORBorehole MD:28658Well Name:SE003Paleo Done By:OPERATORBorehole TVD:22050ARI Well Number:608074024301Prilling Operator:SHELL OFFSHORE INC.Rkh Floration:82

API Well Number: 608074024301 Drilling Operator: SHELL OFFSHORE INC Rkb Elevation: 82

 Paleo Report Num:
 2
 of
 2
 Sample Range:
 20000 28658
 Water Depth:
 3394

Public Info Code: Y 19-SEP-2010 Ecozone Eq MMS: Y

MD / TVDPaleo Top DescriptionEcozone28658 / 22051DEF AT last sample examinedDEF AT 5

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 421

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 07-FEB-2003 21980 First Sample Examined: Lease Number: G11528 Source of Paleo: OPERATOR 29171 **Borehole MD:** Well Name: SE003 Paleo Done By: OPERATOR **Borehole TVD:** 21360 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074024302 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 Sample Range: 21980 - 29171 3394 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Serrano Prospect, calcareous nannofossil report done by Morin Biostratigraphic Services, nannospecies abundance and diversity chart available, see

report for details

Pales Ton Description

MID / TVD		Paleo Top Description		Ecozone
21980 / 18569	DEF	AT first sample examined	DEF	AT
22100 / 18652	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
22910 / 19168	DEF	AT local marker floral increase	DEF	AT
24140 / 19890	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	DEF	AT
24290 / 19970	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
24350 / 20002	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
24800 / 20246	DEF	AT local marker floral increase	DEF	AT
25640 / 20628	DEF	AT local marker floral increase	DEF	AT
26120 / 20827	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
27140 /21242	DEF	AT local marker floral increase	DEF	AT
27500 / 21348	DEF	AT local marker floral increase	DEF	AT
28280 / 21476	DEF	AT local marker floral increase	DEF	AT
28670 / 21463	DEF	AT local marker floral increase	DEF	AT
29171 / 21360	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

422

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 09-FEB-2003 First Sample Examined: 21980 Lease Number: G11528 Source of Paleo: OPERATOR 29171 **Borehole MD:** Well Name: SE003 Paleo Done By: OPERATOR **Borehole TVD:** 21360 **API Well Number:** 608074024302 **Drilling Operator: SHELL OFFSHORE INC Rkb Elevation:** 82 Water Depth: 3394 Paleo Report Num: 2 of 2 Sample Range: 21980 - 29171 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Serrano Prospect, paleo done by Ragan Biostrat, 21980=below Lower Pleistocene Globorotalia crassiformis coiling change left to right, 22010=in Lower Pleistocene Globorotalia triangula, 26120,26260=rare Lower Pleistocene Globorotalia limbata, 28580=Lower Pleistocene Globorotalia puncticulata,

species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
21980 / 18569	DEF	AT first sample examined	DEF	AT	5
21981 / 18570	DEF	IN Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	DEF	AT	5
22010 / 18590	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
22070 / 18631	DEF	AT local marker foram increase	DEF	AT	5
22250 / 18751	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
23270 / 19397	DEF	AT	DEF	AT	4
23510 / 19548	DEF	AT	POS	AT	4
23600 / 19600	DEF	AT	DEF	AT	3
23750 / 19682	DEF	AT	DEF	AT	4
23780 / 19698	DEF	AT local marker foram increase	DEF	AT	4
23870 / 19746	DEF	AT	DEF	AT	5
23900 / 19762	DEF	AT	DEF	AT	4
24050 / 19843	DEF	AT	DEF	AT	5
24080 / 19858	DEF	AT local marker foram increase	DEF	AT	5
24140 / 19890	DEF	AT local marker foram increase	DEF	AT	5
24290 / 19970	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
24320 / 19986	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
24770 / 20230	DEF	AT local marker foram increase	DEF	AT	5
24890 / 20295	DEF	AT local marker foram increase	DEF	AT	5
24980 / 20342	DEF	AT local marker foram increase	DEF	AT	5

GEOLOGIC 02-FEB-2011

423

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 09-FEB-2003 First Sample Examined: 21980 Source of Paleo: OPERATOR Lease Number: G11528 **Borehole MD:** 29171 Well Name: SE003 Paleo Done By: OPERATOR **Borehole TVD:** 21360 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074024302 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 Sample Range: 21980 - 29171 3394 Water Depth:

Public Info Code: Y 19-SEP-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ē	<u> Cozone</u>
25430 / 20541	DEF	AT local marker foram increase	DEF	AT	5
25550 / 20590	DEF	AT local marker foram increase	DEF	AT	5
25910 / 20741	DEF	AT local marker foram increase	DEF	AT	5
26119 / 20827	POS	AT reworked material	DEF	AT	5
26120 / 20827	POS	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	5
26210 / 20863	DEF	AT	DEF	AT	4
26450 / 20963	DEF	AT	DEF	AT	5
26510 / 20988	DEF	AT local marker foram increase	DEF	AT	5
26600 / 21026	DEF	AT local marker foram increase	DEF	AT	5
26750 / 21087	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
26810 / 21112	DEF	AT local marker foram increase	DEF	AT	5
26900 / 21149	DEF	AT local marker foram increase	DEF	AT	5
27140 / 21242	DEF	AT	DEF	AT	4
27320 / 21300	DEF	AT	DEF	AT	5
27470 / 21341	DEF	AT	DEF	AT	4
27620 / 21375	DEF	IN Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
27740 / 21403	DEF	AT local marker foram increase	DEF	AT	5
28040 / 21455	DEF	AT	DEF	AT	4
28580 / 21472	DEF	AT local marker planktic foram increase	DEF	AT	5
28970 /21408	DEF	AT local marker foram increase	DEF	AT	5
29171 / 21360	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 424

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 516 Date of Summary: 21-JAN-2003 27980 First Sample Examined: Lease Number: G11528 Source of Paleo: OPERATOR 29547 **Borehole MD:** Well Name: SE003 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 21882 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074024303 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 27980 - 29547 3394 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Serrano Prospect

MD / TVD		Paleo Top Description		<u> </u>	cozone
27980 / 21133	DEF	AT first sample examined	DEF	AT	4
28130 / 21165	DEF	AT	DEF	AT	5
28160 / 21172	DEF	AT	DEF	AT	4
28460 / 21257	DEF	AT	DEF	AT	5
28490 / 21267	DEF	AT	DEF	AT	4
28520 / 21278	DEF	AT	DEF	AT	5
28550 / 21289	DEF	AT	DEF	AT	4
29180 / 21624	DEF	AT	DEF	AT	5
29210 / 21644	DEF	AT	DEF	AT	4
29360 / 21748	DEF	AT	DEF	AT	5
29390 / 21769	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	4
29480 / 21834	DEF	AT faunal change (no faunal increase)	DEF	AT	4
29540 / 21877	DEF	AT local marker foram increase	DEF	AT	4
29547 / 21882	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

425

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-APR-1999 14010 First Sample Examined: Lease Number: G11546 Source of Paleo: OPERATOR 19500 **Borehole MD:** Well Name: OR001 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 19385 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019900 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 14010 - 19470 3400 Water Depth: Public Info Code: Y 26-APR-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14010 / 13965	DEF	AT first sample examined	DEF	AT
14011 / 13966	POS	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
15390 / 15328	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
15960 / 15891	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16350 / 16275	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16470 / 16394	POS	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
16529 / 16452	POS	AT reworked material	DEF	AT
16530 / 16453	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
16890 / 16808	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17880 / 17785	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
18300 / 18199	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
18570 / 18466	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18660 / 18555	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
19470 / 19355	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

426

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 21-APR-1999 First Sample Examined: 13980 Lease Number: G11546 Source of Paleo: OPERATOR **Borehole MD:** 19500 Well Name: OR001 Paleo Done By: OPERATOR **Borehole TVD:** 19385 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019900 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 13980 - 19500 3400 Water Depth: Public Info Code: Y 26-APR-2009 Ecozone Eq MMS: Y Paleo ID: 002

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
13980 / 13936	DEF	AT first sample examined	DEF	AT	
14250 / 14202	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	4
14310 / 14262	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	4
14400 / 14351	DEF	AT local marker foram decrease	DEF	IN	4
15389 / 15327	POS	AT reworked material	DEF	IN	4
15390 / 15328	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	4
16350 / 16275	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	4
16890 / 16808	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	4
17880 / 17785	POS	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	IN	4
18240 / 18140	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	4
18270 / 18169	DEF	IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	IN	4
18600 / 18495	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	IN	4
18690 / 18584	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	IN	4
19500 / 19385	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 427

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-SEP-2000 First Sample Examined: 13890 Lease Number: G11546 Source of Paleo: OPERATOR 19500 **Borehole MD:** Well Name: OR001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18455 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019901 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 13890 - 19490 3400 Water Depth: Public Info Code: Y 01-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ec	ozone
13890 / 13847	DEF	AT first sample examined	DEF	AT	
14490 / 14439	DEF	AT sand	DEF	AT	
14820 / 14758	DEF	AT gray shale	DEF	AT	
16290 / 15959	DEF	AT	DEF	AT	4
16650 / 16238	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18450 / 17632	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	4
18929 / 18004	DEF	AT Arenaceous fauna (local marker)	POS	AT	4
18930 / 18005	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	POS	AT	4
18990 / 18052	DEF	AT	DEF	AT	4
19490 / 18448	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

428

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-OCT-2000 First Sample Examined: 13980 Lease Number: G11546 Source of Paleo: OPERATOR **Borehole MD:** 19500 Well Name: OR001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 18455 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019901 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 13980 - 19500 3400 Water Depth: Public Info Code: Y 01-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13980 / 13936	DEF	AT first sample examined	DEF	AT
14280 / 14232	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
16230 / 15913	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17880 / 17195	POS	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
18270 / 17493	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
18540 / 17702	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
19200 / 18217	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
19500 / 18456	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 429

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-OCT-2000 First Sample Examined: 14140 Lease Number: G11546 Source of Paleo: OPERATOR 19710 **Borehole MD:** Well Name: OR002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19266 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074022100 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 14140 - 19680 3400 Water Depth: Public Info Code: Y 01-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
14140 / 14041	DEF	AT first sample examined	DEF	AT	4
14170 / 14070	DEF	AT	DEF	AT	0
14290 / 14183	DEF	AT	DEF	AT	4
14350 / 14240	DEF	AT	DEF	AT	5
14380 / 14269	DEF	AT	DEF	AT	4
14440 / 14325	DEF	AT	DEF	AT	0
14500 / 14382	POS	AT reworked material	DEF	AT	
14530 / 14411	DEF	AT sand	DEF	AT	
15100 / 14945	DEF	AT gray shale	DEF	AT	
15610 / 15420	DEF	AT sand	DEF	AT	
15970 / 15756	DEF	AT sand	DEF	AT	
16090 / 15867	DEF	AT	DEF	AT	4
16120 / 15895	DEF	AT	DEF	AT	0
16240 / 16007	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	
16300 / 16064	DEF	AT poor sample interval top	DEF	AT	
16330 / 16092	DEF	AT	DEF	AT	4
16360 / 16120	DEF	AT	DEF	ΑT	0
16570 / 16317	DEF	AT local marker foram decrease	DEF	ΑT	
16600 / 16345	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	4
16630 / 16373	DEF	AT	DEF	AT	0
16900 / 16625	DEF	AT sand	DEF	AT	
17350 / 17050	DEF	AT	DEF	AT	4

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

430

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-OCT-2000 First Sample Examined: 14140 Lease Number: G11546 Source of Paleo: OPERATOR 19710 **Borehole MD:** Well Name: OR002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19266 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074022100 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 14140 - 19680 Water Depth: 3400 Public Info Code: Y 01-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Ē	cozone
17380 / 17078	DEF	AT	DEF	AT	0
17500 / 17191	DEF	AT gray shale	DEF	AT	
18100 / 17753	DEF	AT	DEF	ΑT	4
18160 / 17810	DEF	AT	DEF	ΑT	0
18250 / 17894	DEF	AT sand	DEF	ΑT	
18430 / 18062	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
18580 / 18202	DEF	AT	DEF	ΑT	0
18610 / 18230	DEF	AT	DEF	ΑT	4
18700 / 18315	DEF	AT	DEF	ΑT	0
18730 / 18344	DEF	AT local marker foram decrease	DEF	ΑT	
18790 / 18401	DEF	AT	DEF	ΑT	4
18820 / 18429	DEF	AT	DEF	ΑT	0
18940 / 18543	DEF	AT gray shale	DEF	ΑT	
19270 / 18855	DEF	AT sand	DEF	ΑT	
19680 / 19240	DEF	AT last sample examined	DEF	ΑT	

GEOLOGIC 02-FEB-2011

431

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-NOV-2000 First Sample Examined: 14260 Lease Number: G11546 Source of Paleo: OPERATOR **Borehole MD:** 19710 Well Name: OR002 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 19266 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074022100 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 14260 - 19710 3400 Water Depth: Public Info Code: Y 01-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14260 / 14155	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
15310 / 15141	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
16180 / 15951	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16510 / 16261	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
18100 / 17753	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
18460 / 18090	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 432

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-OCT-2000 First Sample Examined: 17800 Lease Number: G11546 Source of Paleo: OPERATOR **Borehole MD:** 19687 Well Name: OR002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19276 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074022101 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 17800 - 19660 3400 Water Depth: Public Info Code: Y 07-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
17800 / 17472	DEF	AT first sample examined	DEF	AT	
18520 / 18157	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18550 / 18186	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	
18610 / 18243	DEF	AT	DEF	AT	0
18640 / 18272	DEF	AT	DEF	AT	4
18670 / 18301	DEF	AT	DEF	AT	0
18700 / 18329	DEF	AT sand	DEF	AT	
19210 / 18818	DEF	AT sand	DEF	AT	
19360 / 18962	DEF	AT gray shale	DEF	AT	
19660 / 19250	DEF	AT last sample examined	DEF	ΑT	

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 433

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Well Name: OR002

API Well Number: 608074022101

Paleo Report Num: 2 of 2

Area Block: GB 559 Date of Summary: 01-DEC-2000 Lease Number: G11546

Source of Paleo: OPERATOR

Paleo Done By: BECK BIOSTRAT INC.

**Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Sample Range:** 17800 - 19687

Public Info Code: Y 07-NOV-2010 **Ecozone Eq MMS:** 

17800 First Sample Examined: 19687 **Borehole MD: Borehole TVD:** 19276 **Rkb Elevation:** 84 Water Depth: 3400

Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD **Paleo Top Description Ecozone** POS AT Upper Pliocene (Gelasian) Discoaster brouweri 17890 / 17556 DEF AT POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus DEF AT 18700 / 18329

GEOLOGIC 02-FEB-2011 PAGE: 434

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-NOV-2000 First Sample Examined: 17790 Lease Number: G11546 Source of Paleo: OPERATOR **Borehole MD:** 19580 Well Name: OR002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19245 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074022102 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 17790 - 19560 3400 Water Depth: Public Info Code: Y 23-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
17790 / 17536	DEF	AT first sample examined	DEF	AT	
17880 / 17622	DEF	AT	DEF	AT	4
17910 / 17650	DEF	AT	DEF	AT	0
18030 / 17765	DEF	AT sand	DEF	AT	
18390 / 18109	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
18420 / 18138	DEF	AT	DEF	AT	4
18600 / 18311	DEF	AT	DEF	AT	0
18660 / 18368	DEF	AT	DEF	AT	4
18690 / 18397	DEF	AT	DEF	AT	0
18720 / 18426	DEF	AT	DEF	AT	4
18750 / 18454	DEF	AT	DEF	AT	0
19050 / 18743	DEF	AT	DEF	AT	4
19080 / 18772	DEF	AT	DEF	AT	0
19560 / 19235	DEF	AT last sample examined	DEF	AT	

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 435

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-DEC-2000 17790 First Sample Examined: Lease Number: G11546 Source of Paleo: OPERATOR 19580 **Borehole MD:** Well Name: OR002 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 19245 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074022102 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 17790 - 19580 3400 Water Depth: Public Info Code: Y 23-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

<u> </u>	Paleo Top Description	<u>Ecozone</u>
17790 / 17536	POS IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
18390 / 18109	POS AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
18570 / 18282	DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 436

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 559	Date of Summary: 01-NOV-2000	First Sample Examined:	17800
Lease Number: G11546	Source of Paleo: OPERATOR	Borehole MD:	19670
Well Name: OR002	Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.	Borehole TVD:	19435
API Well Number: 608074022103	<b>Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC</b>	Rkb Elevation:	84
Paleo Report Num: 1 of 2	Sample Range: 17800 - 19680	Water Depth:	3400
Public Info Code: Y 28-NOV-2010	Ecozone Ea MMS: Y	Paleo ID:	001

#### Remark:

MD/TVD		Paleo Top Description		<u>E</u>	cozone
17800 / 17571	DEF	AT first sample examined	POS	AT	4
17890 / 17660	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18430 / 18196	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	4
19320 / 19085	DEF	AT gray shale	DEF	AT	4
19680 /	DEF	AT last sample examined	DEF	AT	4

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 437 PAGE:

First Sample Examined:

**Borehole MD:** 

17800

19670

19435

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 559 Date of Summary: 01-DEC-2000 Lease Number: G11546 Source of Paleo: OPERATOR Well Name: OR002 Paleo Done By: BECK BIOSTRAT INC.

**Borehole TVD: API Well Number:** 608074022103 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC

Public Info Code: Y 28-NOV-2010

**Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 17800 - 19670 Water Depth: 3400 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD **Paleo Top Description Ecozone** POS IN Upper Pliocene (Gelasian) Discoaster pentaradiatus 18010 / 17779 DEF AT POS AT Upper Pliocene (Gelasian) Discoaster surculus DEF AT 18640 / 18406

GEOLOGIC 02-FEB-2011

438

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 562 Date of Summary: 29-SEP-2000 9008 First Sample Examined: Lease Number: G20794 Source of Paleo: OPERATOR 19831 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19491 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608074021900 **Rkb Elevation:** 79 Paleo Report Num: 1 of 2 **Sample Range:** 9008 - 19830 3310 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	ozone
9008 / 9008	DEF	AT first sample examined	DEF	AT	5
9900 / 9900	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
12960 / 12921	POS	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
14880 / 14755	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
15179 / 15043	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
15180 / 15044	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
17520 / 17291	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
19230 / 18918	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
19830 / 19490	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 439

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 562 Date of Summary: 29-SEP-2000 9008 First Sample Examined: Lease Number: G20794 Source of Paleo: OPERATOR 19831 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19491 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608074021900 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 9008 - 19830 3310 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9008 / 9008	DEF	AT first sample examined	DEF	AT
9870 / 9870	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
11250 / 11249	POS	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
11970 / 11965	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
14850 / 14727	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
15150 / 15015	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
17520 / 17291	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
17760 / 17520	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
18900 / 18605	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
19200 / 18890	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
19290 / 18976	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
19500 / 19175	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
19530 / 19204	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
19830 / 19490	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

440

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 600 Date of Summary: 26-SEP-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G22326 **Borehole MD:** 24135 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 24127 **Drilling Operator: HESS CORPORATION API Well Number:** 608074023200 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 2934 Water Depth: Public Info Code: Y 16-FEB-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description	<u>Ecozone</u>
7130 / 7130	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
13880 / 13879	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
16730 / 16729	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
17570 / 17568	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
21500 / 21496	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
23000 / 22993	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF AT
23180 / 23173	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF AT
23330 / 23322	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 441

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 602 Date of Summary: 05-OCT-1999 First Sample Examined: 19020 Source of Paleo: OPERATOR Lease Number: G11553 **Borehole MD:** 22855 Well Name: A004 Paleo Done By: THOMAS REILLY **Borehole TVD:** 22675 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019300 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 19020 - 22850 3708 Water Depth: Public Info Code: Y 27-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
19020 / 18840	DEF	AT first sample examined	DEF	IN	3
19170 / 18990	DEF	AT local marker foram increase	DEF	ΑT	4
19200 / 19020	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	4
19500 / 19320	DEF	AT faunal change (no faunal increase)	DEF	IN	3
21270 / 21090	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	4
21540 / 21360	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
21770 / 21590	DEF	AT local marker foram increase	DEF	ΑT	4
21860 / 21680	DEF	AT local marker foram increase	DEF	ΑT	4
21880 / 21700	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	4
21950 / 21770	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	4
22390 / 22210	DEF	AT local marker foram increase	DEF	ΑT	4
22410 / 22230	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	4
22640 / 22460	DEF	AT local marker foram increase	DEF	ΑT	4
22700 / 22520	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	4
22760 / 22580	DEF	AT gouge	DEF	ΑT	4
22761 / 22581	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	4
22790 / 22610	POS	AT salt	DEF	ΑT	4
22800 / 22620	DEF	AT reworked material	DEF	ΑT	4
22850 / 22670	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 442

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 602 Date of Summary: 27-OCT-2001 First Sample Examined: 17300 25271 Source of Paleo: OPERATOR Lease Number: G11553 **Borehole MD:** Well Name: A004 Paleo Done By: THOMAS REILLY **Borehole TVD:** 24234 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074019301 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 17300 - 25280 3708 Water Depth: Public Info Code: Y 02-FEB-2011 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description			<u>Eco</u>	zone
17300 / 17207	DEF	AT first sample examined	DEF	- 11	٧	3
17660 / 17563	DEF	AT faunal change (no faunal increase)	DEF	- A	νT	4
17780 / 17681	DEF	AT faunal change (no faunal increase)	DEF	- 11	V	3
18440 / 18334	DEF	AT faunal change (no faunal increase)	DEF	- A	·Τ	4
19400 / 19282	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	- A	·Τ	4
20090 / 19950	DEF	AT faunal change (no faunal increase)	DEF	- 11	٧	3
20990 / 20789	DEF	AT faunal change (no faunal increase)	DEF	- A	·Τ	4
21050 / 20842	DEF	AT local marker foram increase	DEF	- A	·Τ	4
21830 / 21479	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	- A	·Τ	4
22100 / 21687	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	- A	٠T	4
22820 / 22238	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	- A	·Τ	4
23390 / 22655	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	- A	·Τ	4
23660 / 22870	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	- A	·Τ	4
23810 / 22994	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	- A	·Τ	4
24140 / 23263	DEF	AT local marker foram increase	DEF	- A	·Τ	4
24830 / 23848	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	- A	·Τ	4
25010 / 24003	DEF	AT local marker foram increase	DEF	- A	·Τ	4
25250 / 24215	DEF	AT last sample examined	DEF	- A	νT	4

GEOLOGIC 02-FEB-2011 PAGE: 443

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 602 17300 Date of Summary: 19-NOV-2001 First Sample Examined: Lease Number: G11553 Source of Paleo: OPERATOR 25271 **Borehole MD:** Well Name: A004 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 24234 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074019301 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 17300 - 25280 3708 Water Depth: Public Info Code: Y 02-FEB-2011 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity table available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
17300 / 17207	DEF	AT first sample examined	DEF	- AT
17301 / 17208	POS	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	- AT
17330 / 17237	DEF	AT reworked material	DEF	- AT
17360 / 17266	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	- AT
18140 / 18038	DEF	AT reworked material	DEF	- AT
18470 / 18364	DEF	AT reworked material	DEF	- AT
18710 / 18600	POS	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	- AT
18740 / 18630	DEF	AT reworked material	DEF	- AT
18890 / 18778	POS	IN Middle Pleistocene (Ionian) Gephyrocapsa margerelli	DEF	- AT
18980 / 18867	DEF	AT reworked material	DEF	- AT
19340 / 19223	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	- AT
19430 / 19312	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	- AT
19610 / 19487	DEF	AT reworked material	DEF	AT .
19700 / 19574	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT .
20630 / 20459	DEF	AT reworked material	DEF	F AT
21350 / 21099	POS	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	F AT
21650 / 21339	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT .
22730 / 22171	DEF	AT reworked material	DEF	AT .
24170 / 23288	DEF	AT local marker floral increase	DEF	- AT
25250 / 24215	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	- AT
25251 / 24216	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	- AT
25280 /	DEF	AT last sample examined	DEF	- AT

GEOLOGIC 02-FEB-2011 PAGE: 444

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 602 Date of Summary: 26-JUL-1999 First Sample Examined: 18780 Source of Paleo: OPERATOR Lease Number: G11553 **Borehole MD:** 24197 Well Name: A005 Paleo Done By: THOMAS REILLY **Borehole TVD:** 23372 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019401 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 18780 - 24190 3693 Water Depth: Public Info Code: Y 28-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description			<u>Ec</u>	ozone
18780 / 18434	DEF	AT first sample examined	DE	F	IN	3
19230 / 18855	DEF	AT faunal change (no faunal increase)	DE	F	AT	4
19290 / 18910	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DE	F	AT	4
19590 / 19189	DEF	AT faunal change (no faunal increase)	DE	F	IN	3
21780 / 21179	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DE	F	AT	4
22230 / 21586	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DE	F	AT	4
22480 / 21812	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DE	F	AT	4
22660 / 21975	DEF	AT local marker foram increase	DE	F	AT	4
23600 / 22830	DEF	AT local marker foram increase	DE	F	AT	4
23610 / 22840	DEF	AT local marker foram increase	DE	F	AT	4
23870 / 23075	DEF	AT local marker foram increase	DE	F	AT	4
23980 / 23175	DEF	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DE	F	AT	4
24010 / 23202	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DE	F	AT	4
24070 / 23256	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DE	F	AT	4
24190 / 23366	DEF	AT last sample examined	DE	F	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 445

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 602 Date of Summary: 08-DEC-1999 First Sample Examined: 18570 Lease Number: G11553 Source of Paleo: OPERATOR **Borehole MD:** 24197 Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD:** 23372 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608074019401 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 18570 - 24200 3693 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 28-JUN-2009 Paleo ID: 002

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	Ecozone	<u> </u>
18570 / 18236	DEF AT first sample examined	DEF AT	
19200 / 18827	DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF IN 3	
19230 / 18855	DEF AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT 4	
19290 / 18910	POS AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT 4	
22230 / 21586	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT 4	
22231 / 21586	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT 4	
22740 / 22048	DEF AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF AT 4	
23080 / 22359	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT 4	
23910 / 23111	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT 4	
23970 / 23166	POS AT condensed section	DEF AT 4	
24200 /	DEF AT last sample examined	DEF AT 4	

GEOLOGIC 02-FEB-2011 PAGE: 446

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 625 Date of Summary: 27-OCT-1998 3550 First Sample Examined: Lease Number: G15927 Source of Paleo: OPERATOR 10835 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 001 **Borehole TVD:** 10495 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608074064801 **Rkb Elevation:** 80 Paleo Report Num: 1 of 2 **Sample Range:** 3550 - 10835 2350 Water Depth: Public Info Code: Y 21-NOV-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Raven Prospect bypass, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
3550 / 3550	DEF	AT first sample examined	DEF	AT
4690 / 4690	DEF	AT local marker floral increase	DEF	AT
5470 / 5470	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
5650 / 5650	DEF	AT local marker floral increase	DEF	AT
6190 / 6190	DEF	AT local marker floral increase	DEF	AT
7690 / 7685	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
8590 / 8507	DEF	AT reworked material	DEF	AT
8650 / 8561	DEF	AT reworked material	DEF	AT
10510 / 10233	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10630 / 10341	DEF	AT local marker floral increase	DEF	AT
10690 / 10395	DEF	AT salt weld	DEF	AT
10750 / 10449	DEF	AT reworked material	DEF	AT
10834 / 10524	DEF	IN Oligocene	DEF	AT
10835 / 10525	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 447

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 625 Date of Summary: 30-OCT-1998 3550 First Sample Examined: Lease Number: G15927 Source of Paleo: OPERATOR 10835 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10495 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608074064801 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 3550 - 10835 2350 Water Depth: Public Info Code: Y 21-NOV-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Raven Prospect bypass, 4660=Upper Illinoian interstadial, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
3550 / 3550	DEF	AT first sample examined	POS	AT	3
3551 / 3551	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	POS	AT	3
3580 / 3580	DEF	AT faunal change (no faunal increase)	DEF	AT	3
3700 / 3700	DEF	AT local marker benthic foram increase	DEF	AT	3
3910 / 3910	DEF	AT limestone	DEF	AT	3
4120 / 4120	DEF	AT local marker foram increase	DEF	AT	3
4540 / 4540	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	3
4630 / 4630	DEF	AT faunal change (no faunal increase)	DEF	IN	3
4660 / 4660	DEF	AT Illinoian fauna (local marker)	DEF	IN	4
4720 / 4720	DEF	AT pyrite	DEF	IN	4
4750 / 4750	DEF	AT faunal change (no faunal increase)	DEF	AT	4
4870 / 4870	DEF	AT local marker benthic foram increase	DEF	AT	4
4960 / 4960	DEF	AT faunal change (no faunal increase)	DEF	IN	3
5140 / 5140	DEF	AT faunal change (no faunal increase)	DEF	AT	3
5320 / 5320	DEF	AT faunal change (no faunal increase)	DEF	IN	3
5440 / 5440	DEF	AT local marker foram increase	DEF	AT	4
5470 / 5470	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	IN	4
5500 / 5500	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	4
5650 / 5650	DEF	AT local marker foram increase	DEF	IN	4
5770 / 5770	DEF	AT faunal change (no faunal increase)	DEF	AT	4
6040 / 6040	DEF	AT local marker foram increase	DEF	AT	4
6340 / 6340	DEF	AT cement	DEF	AT	4

MD / TVD

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE:

448

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 625 Date of Summary: 30-OCT-1998 3550 First Sample Examined: Lease Number: G15927 Source of Paleo: OPERATOR 10835 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10495 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608074064801 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 3550 - 10835 2350 Water Depth: Public Info Code: Y 21-NOV-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

3 4 3
2
3
4
3
4
3
3
3
3
4
4
4
4

Dalas Tau Danasistias

GEOLOGIC 02-FEB-2011

449

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 668 Date of Summary: 01-JUN-1999 First Sample Examined: 5857 Lease Number: G17407 Source of Paleo: OPERATOR 14447 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 14302 **API Well Number:** 608074065400 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 80 Water Depth: 3138 Paleo Report Num: 1 of 1 **Sample Range:** 5857 - 14447 Public Info Code: Y 08-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, 11670=Gephyrocapsa (medium) acme, sequence boundaries are found 30 feet (one sample) above each maximum flooding surface (=condensed section), paleobathymetry ranges from upper to lower bathyal throughout the entire interval examined and

is generalized

<u>MD /</u>	TVD		Paleo Top Description		<u>Eco</u>	zone
5857 /	5857	DEF	AT first sample examined	POS	AT	4
6330 /	6330	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	POS	AT	4
6360 /	6360	DEF	AT sequence boundary	DEF	AT	4
6389 /	6389	DEF	AT maximum flooding surface	DEF	AT	4
6390 /	6390	DEF	AT condensed section	POS	AT	4
6598 /	6598	DEF	AT maximum flooding surface	DEF	AT	4
6599 /	6599	DEF	AT condensed section	POS	AT	4
6600 /	6600	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	POS	AT	4
7380 /	7380	DEF	AT sequence boundary	DEF	AT	4
7409 /	7409	DEF	AT maximum flooding surface	DEF	AT	4
7410 /	7410	DEF	AT condensed section	POS	AT	4
7950 /	7950	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	POS	AT	4
8250 /	8250	DEF	AT sequence boundary	DEF	AT	4
8278 /	8278	DEF	AT maximum flooding surface	DEF	AT	4
8279 /	8279	DEF	AT condensed section	POS	AT	4
8280 /	8280	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	POS	AT	4
8730 /	8730	DEF	AT sequence boundary	DEF	AT	4
8758 /	8758	DEF	AT maximum flooding surface	DEF	AT	4
8759 /	8759	DEF	AT condensed section	POS	AT	4
8760 /	8760	POS	AT Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	POS	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 450

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 668 Date of Summary: 01-JUN-1999 First Sample Examined: 5857 Source of Paleo: OPERATOR Lease Number: G17407 **Borehole MD:** 14447 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 14302 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074065400 **Rkb Elevation:** 80

> Paleo Report Num:
>  1 of 1
>  Sample Range:
>  5857 - 14447
>  Water Depth:
>  3138

Public Info Code: Y 08-JUN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			Ecozone
8790 / 8790	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	4
9630 / 9630	DEF	AT sequence boundary	DEF	AT	4
9658 / 9658	DEF	AT maximum flooding surface	DEF	AT	4
9659 / 9659	DEF	AT Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	POS	S AT	4
9660 / 9660	DEF	AT condensed section	POS	S AT	4
9690 / 9690	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	POS	S AT	4
10830 / 10830	DEF	AT sequence boundary	DEF	AT	4
10858 / 10858	DEF	AT maximum flooding surface	DEF	AT	4
10859 / 10859	DEF	AT condensed section	POS	S AT	4
10860 / 10860	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	POS	S AT	4
11640 / 11639	DEF	AT sequence boundary	DEF	AT	4
11668 / 11667	DEF	AT maximum flooding surface	DEF	AT	4
11669 / 11668	DEF	AT condensed section	POS	S AT	4
11670 / 11669	DEF	AT local marker floral increase	POS	S AT	4
13320 / 13256	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	POS	S AT	4
13710 / 13623	DEF	AT sequence boundary	DEF	AT	4
13738 / 13650	DEF	AT maximum flooding surface	DEF	AT	4
13739 / 13651	DEF	AT condensed section	POS	S AT	4
13740 / 13652	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	POS	S AT	4
14070 / 13958	DEF	AT sequence boundary	DEF	AT	4
14098 / 13984	DEF	AT maximum flooding surface	DEF	AT	4
14099 / 13985	DEF	AT condensed section	POS	S AT	4
14100 / 13986	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	S AT	4
14447 /	DEF	AT last sample examined	POS	S AT	4

GEOLOGIC 02-FEB-2011

PAGE:

451

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 668 Date of Summary: 01-JUN-1999 First Sample Examined: 14447 Lease Number: G17407 Source of Paleo: OPERATOR 17066 **Borehole MD:** Well Name: 001 Paleo Done By: MICRO-STRAT **Borehole TVD:** 16713 **API Well Number: 608074065401 Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 80 Water Depth: 3138 Paleo Report Num: 1 of 2 **Sample Range:** 14447 - 17066 Public Info Code: Y 21-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, 14550=rare Sphaeroidinellopsis sphaeroides, sequence boundaries are found 20 feet above the

maximum flooding surface (condensed section), paleobathymetry ranges from upper to Lower bathyal throughout the entire interval examined and is

generalized

MD / TVD		Paleo Top Description		<u> </u>	<u>cozone</u>
14447 / 14303	DEF	AT first sample examined	POS	IN	4
14550 / 14398	POS	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	IN	4
15119 / 14924	DEF	AT condensed section	POS	IN	4
15120 / 14925	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	4
16920 / 16578	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	IN	4
16950 / 16606	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	4
17050 / 16698	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC

02-FEB-2011 PAGE: 452

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 668	Date of Summary: 14-MAR-2001	First Sample Examined:	13950
Lease Number: G17407	Source of Paleo: OPERATOR	Borehole MD:	17066
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	16713
API Well Number: 608074065401	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	80
Paleo Report Num: 2 of 2	Sample Range: 13950 - 16170	Water Depth:	3138
Public Info Code: Y 21-JUN-2010	Ecozone Eq MMS:	Paleo ID:	002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13950 / 13847	DEF AT first sample examined	DEF AT
14010 / 13902	DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
16170 / 15892	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

PAGE:

453

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 668 13950 Date of Summary: 01-JUN-2000 First Sample Examined: Lease Number: G17407 Source of Paleo: OPERATOR 19147 **Borehole MD:** Well Name: 001 Paleo Done By: MICRO-STRAT **Borehole TVD:** 17936 **API Well Number:** 608074065402 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 80 **Sample Range:** 13950 - 19147 3138 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 18-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno high-resolution biostratigraphic analysis and identification of sequence boundaries and maximum flooding

surfaces, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	<u>ozone</u>
13950 / 13847	DEF	AT first sample examined	DEF	IN	4
14010 / 13902	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	4
14070 / 13957	POS	AT sequence boundary	DEF	IN	4
14099 / 13984	DEF	AT maximum flooding surface	DEF	IN	4
14100 / 13985	DEF	AT condensed section	DEF	IN	4
14130 / 14012	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	4
14250 / 14120	DEF	AT	POS	IN	4
15570 / 15025	DEF	AT local marker planktic foram increase	POS	IN	4
17060 / 16121	POS	AT sequence boundary	POS	IN	4
17099 / 16152	DEF	AT maximum flooding surface	POS	IN	4
17100 / 16153	DEF	AT condensed section	POS	IN	4
17160 / 16201	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	POS	IN	4
18750 / 17579	DEF	AT	DEF	IN	4
18838 / 17659	DEF	AT sequence boundary	DEF	IN	4
18839 / 17659	POS	AT unconformity	DEF	IN	4
18840 / 17660	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	IN	4
18868 / 17685	DEF	AT maximum flooding surface	DEF	IN	4
18869 / 17686	DEF	AT condensed section	DEF	IN	4
18870 / 17687	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	4
19110 / 17903	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011

PAGE: 454

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 668	Date of Summary: 14-MAR-2001	First Sample Examined:	13950
Lease Number: G17407	Source of Paleo: OPERATOR	Borehole MD:	19147
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	17936
API Well Number: 608074065402	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	80
Paleo Report Num: 2 of 2	Sample Range: 13950 - 19140	Water Depth:	3138
Public Info Code: Y 18-JUL-2010	Ecozone Eq MMS:	Paleo ID:	002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description		<b>Ecozone</b>
13950 / 13847	DEF	AT first sample examined	DEF	AT
14010 / 13902	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
18060 / 16958	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
19140 / 17930	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 455

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 668	Date of Summary: 05-DEC-2000	First Sample Examined:	8650
Lease Number: G17408	Source of Paleo: OPERATOR	Borehole MD:	14401
Well Name: SS001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	12569
API Well Number: 608074065403	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	83
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 8650 - 14398	Water Depth:	3138
Public Info Code: Y 16-NOV-20	10 Ecozone Ea MMS: Y	Paleo ID:	002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	Ecozone
8650 / 8650	DEF AT first sample examined	DEF AT 5
8710 / 8710	POS IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF AT 5
14398 / 12567	DEF AT last sample examined	DEF AT 5

GEOLOGIC

02-FEB-2011 PAGE: 456

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 668	Date of Summary:	05-DEC-2000	First Sample Examined:	8650
Lease Number: G17408	Source of Paleo:	OPERATOR	Borehole MD:	14401
Well Name: SS001	Paleo Done By:	PALEO-DATA, INC.	Borehole TVD:	12569
API Well Number: 6080740	65403 <b>Drilling Operator:</b>	KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	83
Paleo Report Num: 2 of	2 Sample Range:	8650 - 14398	Water Depth:	3138
Public Info Code: Y 16-No	OV-2010 Ecozone Eq MMS:		Paleo ID:	003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
8650 / 8650	DEF AT first sample examined	DEF AT
8651 / 8651	DEF IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT
9490 / 9437	DEF AT reworked material	DEF AT
9850 / 9713	DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF AT
11410 / 10567	POS AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT
14350 / 12527	POS AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
14351 / 12527	DEF AT reworked material	DEF AT
14398 / 12567	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 457

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 668 Date of Summary: 05-DEC-2000 13630 First Sample Examined: Lease Number: G17408 Source of Paleo: OPERATOR 15339 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13479 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074065404 **Rkb Elevation:** 83 Paleo Report Num: 1 of 2 **Sample Range:** 13630 - 15340 3138 Water Depth: Public Info Code: Y 09-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13630 / 11931	DEF AT first sample examined	DEF AT 5
15340 /	DEF AT last sample examined	DEF AT 5

GEOLOGIC

02-FEB-2011 PAGE: 458

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 668	Date of Summary: 05-DEC-2000	First Sample Examined: 13630
Lease Number: G17408	Source of Paleo: OPERATOR	Borehole MD: 15339
Well Name: SS001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD: 13479
API Well Number: 6080740654	Drilling Operator: KERR-MCGEE OIL & GAS CORPORA	ATION Rkb Elevation: 83
Paleo Report Num: 2 of 2	<b>Sample Range:</b> 13630 - 15340	Water Depth: 3138
Public Info Code: Y 09-DEC-2	2010 Ecozone Eq MMS:	Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>	Paleo Top Description	<u>Ecozone</u>
13630 / 11931	DEF AT first sample examined	DEF AT
14350 / 12539	POS AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
15340 /	DEF AT last sample examined	DEF AT

MD / TVD

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 459

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 778 12930 Date of Summary: 26-MAR-2008 First Sample Examined: Lease Number: G19175 Source of Paleo: OPERATOR 23972 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23082 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074028900 **Rkb Elevation:** 82 **Sample Range:** 12930 - 23972 3800 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 19-AUG-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Clearwater Prospect, calcareous nannofossil report done by Morin Biostratigraphic Services, nannospecies abundance and diversity chart available,

see report for details

Paleo Top Description

		Paleo Top Description		ECOZOTIE
12930 / 12929	DEF	AT first sample examined	DEF	AT
12931 / 12930	DEF	IN gouge	DEF	AT
13530 / 13529	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
14700 / 14688	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
17070 / 16840	DEF	AT local marker floral increase	DEF	AT
17190 / 16948	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17250 / 17003	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17910 / 17599	DEF	AT local marker floral increase	DEF	AT
17940 / 17626	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
18600 / 18223	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
18960 / 18549	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
19410 / 18955	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
19530 / 19064	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
19890 / 19389	DEF	AT local marker floral increase	DEF	AT
20460 / 19905	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
20550 / 19986	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
21040 / 20429	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
21130 / 20511	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
21250 / 20619	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
21670 / 20999	DEF	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
21790 /21108	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT

GEOLOGIC

460

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 778 First Sample Examined: 12930 Date of Summary: 26-MAR-2008 Source of Paleo: OPERATOR Lease Number: G19175 **Borehole MD:** 23972 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23082 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074028900 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 12930 - 23972 3800 Water Depth:

Public Info Code: Y 19-AUG-2008 Ecozone Eq MMS:

MD / TVD	<u>F</u>	aleo Top Description		<b>Ecozone</b>
21940 / 21243	DEF AT U	Jpper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
21970 / 21270	DEF AT U	Jpper Miocene (Tortonian) Discoaster bollii	DEF	AT
22360 / 21623	DEF AT U	Jpper Miocene (Tortonian) Discoaster hamatus	DEF	AT
22450 / 21705	DEF AT U	Jpper Miocene (Tortonian) Catinaster coalitus	DEF	AT
22630 / 21868	DEF AT U	Jpper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
22750 / 21976	DEF AT N	Middle Miocene (Serravallian) Coccolithus miopelagicus (increase)	DEF	AT
22809 / 22030	DEF AT N	Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
22810 / 22031	DEF AT N	Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
22899 / 22111	DEF AT o	ondensed section	DEF	AT
22900 / 22112	DEF AT N	Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
23972 / 23082	DEF AT I	ast sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 461

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 778 12930 Date of Summary: 08-APR-2008 First Sample Examined: Lease Number: G19175 Source of Paleo: OPERATOR **Borehole MD:** 23972 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23082 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608074028900 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 12930 - 23972 3800 Water Depth: Public Info Code: Y 19-AUG-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Clearwater Prospect, paleo done by Ragan Biostrat

MD / TVD		Paleo Top Description		Eco	ozone
12930 / 12929	DEF	AT first sample examined	DEF	AT	5
12931 / 12930	DEF	IN gouge	DEF	AT	5
13320 / 13319	DEF	IN Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
13350 / 13349	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
13500 / 13499	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
13950 / 13949	DEF	AT local marker foram decrease	DEF	AT	5
14430 / 14426	DEF	AT local marker planktic foram increase	DEF	AT	4
14670 / 14659	DEF	AT local marker planktic foram increase	DEF	AT	5
14820 / 14803	DEF	AT local marker foram decrease	DEF	AT	5
15960 / 15838	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
16110 / 15973	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
16140 / 16000	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
16170 / 16027	DEF	AT local marker foram decrease	DEF	AT	4
16440 / 16270	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	AT	5
17100 / 16867	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
17190 / 16948	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
18330 / 17979	DEF	AT foram flood	DEF	AT	5
18390 / 18033	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
18510 / 18142	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
18570 / 18196	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
19080 / 18657	DEF	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	AT	5
19110 / 18684	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 462

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GB778Date of Summary:08-APR-2008First Sample Examined:12930Lease Number:G19175Source of Paleo:OPERATORBorehole MD:23972Well Name:001Paleo Done By:OPERATORBorehole TVD:23082

API Well Number: 608074028900 Drilling Operator: SHELL OFFSHORE INC Rkb Elevation: 82

Paleo Report Num: 2 of 2 Sample Range: 12930 - 23972 Water Depth: 3800

Public Info Code: Y 19-AUG-2008 Ecozone Eq MMS: Y

MD/TVD		Paleo Top Description		<u>E</u>	cozone
19380 / 18928	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
20070 / 19552	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	5
20610 / 20040	POS	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	5
21010 / 20402	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	AT	5
21070 / 20456	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	5
21190 / 20565	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
21220 / 20592	POS	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	AT	5
21670 / 20999	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
21910 / 21216	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	5
21940 / 21243	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
22510 / 21759	DEF	AT local marker planktic foram increase	DEF	AT	5
22599 / 21840	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
22600 / 21841	DEF	AT Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	ΑT	5
22660 / 21895	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
22690 / 21922	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
22780 / 22003	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
22840 / 22058	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	ΑT	5
22870 / 22085	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	ΑT	5
22899 / 22111	DEF	AT foram flood	DEF	ΑT	5
22900 / 22112	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	ΑT	5
22960 / 22166	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	ΑT	5
23050 / 22248	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	ΑT	5
23080 / 22275	POS	AT Middle Miocene (Langhian) Globorotalia siakensis (coiling change left/right)	DEF	ΑT	5
23110 / 22302	DEF	AT local marker foram decrease	DEF	ΑT	5

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 463

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GB778Date of Summary:08-APR-2008First Sample Examined:12930Lease Number:G19175Source of Paleo:OPERATORBorehole MD:23972Well Name:001Paleo Done By:OPERATORBorehole TVD:23082API Well Number:608074028900Drilling Operator:SHELL OFFSHORE INCRkb Elevation:82

API Well Number: 608074028900 Drilling Operator: SHELL OFFSHORE INC Rkb Elevation: 82
Paleo Report Num: 2 of 2 Sample Range: 12930 - 23972 Water Depth: 3800

Public Info Code: Y 19-AUG-2008 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description	<u>Ecozone</u>
23350 / 22519	DEF AT local marker benthic foram increase	DEF AT 4
23500 / 22655	DEF AT local marker deep water fauna	DEF AT 5
23972 / 23082	DEF AT last sample examined	DEF AT 5

GEOLOGIC 02-FEB-2011 PAGE: 464

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 782 7220 Date of Summary: 01-APR-2000 First Sample Examined: Lease Number: G20797 Source of Paleo: OPERATOR 16616 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 15717 **API Well Number:** 608074021500 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 **Sample Range:** 7220 - 16616 4642 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 01-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 10281=Crenalithus domicoides and Helicosphaera colombiana also present, 15240=Reticulofenestra asanoi

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7220 / 7220	DEF	AT first sample examined	DE	F AT
7520 / 7520	DEF	AT local marker floral increase	DE	F AT
7521 / 7521	DEF	IN Upper Pleistocene (Ionian) Gephyrocapsa aperta	DE	F AT
7610 / 7610	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DE	F AT
7820 / 7820	DEF	AT local marker floral increase	DE	F AT
7850 / 7850	DEF	AT reworked material	DE	F AT
8360 / 8360	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DE	F AT
9530 / 9530	POS	AT local marker floral increase	DE	F AT
9650 / 9650	DEF	AT local marker floral increase	DE	F AT
9770 / 9770	POS	AT local marker floral increase	DE	F AT
10280 / 10280	DEF	AT local marker floral increase	DE	F AT
10281 / 10281	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DE	F AT
10430 / 10430	DEF	AT local marker floral increase	DE	F AT
10640 / 10640	DEF	AT local marker floral increase	DE	F AT
12870 / 12844	DEF	AT local marker floral increase	DE	F AT
12900 / 12871	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa parallela	DE	F AT
15240 / 14685	DEF	AT local marker floral increase	DE	F AT
15510 / 14889	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DE	F AT
15840 / 15139	POS	AT local marker floral increase	DE	F AT
16050 / 15297	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DE	F AT
16616 / 15717	DEF	AT last sample examined	DE	F AT

GEOLOGIC 02-FEB-2011

465

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 782 Date of Summary: 01-JUL-2000 First Sample Examined: 15980 Lease Number: G20797 Source of Paleo: OPERATOR **Borehole MD:** 21296 Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 18276 **Drilling Operator:** VASTAR RESOURCES INC. **API Well Number:** 608074021505 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 15980 - 21296 4642 Water Depth: Public Info Code: Y 01-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15980 / 14834	DEF	AT first sample examined	DEF	AT
16050 / 14881	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16370 / 15097	DEF	AT local marker floral increase	DEF	AT
16670 / 15297	DEF	AT local marker floral increase	DEF	AT
18770 / 16659	DEF	AT local marker floral increase	DEF	AT
19460 / 17098	DEF	AT local marker floral increase	DEF	AT
19640 / 17214	DEF	AT local marker floral increase	DEF	AT
20660 / 17865	DEF	AT reworked material	DEF	AT
21296 / 18276	DEF	AT last sample examined	DEF	AT

GEOLOGIC

02-FEB-2011 PAGE: 466

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 782 Date of Summary: 01-AUG-2000 First Sample Examined: 12850 Lease Number: G20797 Source of Paleo: OPERATOR **Borehole MD:** 20305 Well Name: 002 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 20297 **Drilling Operator:** VASTAR RESOURCES INC. **API Well Number:** 608074021801 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 12850 - 20305 4528 Water Depth: Public Info Code: Y 01-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description	<u>E</u>	cozone
12850 / 12850	DEF	AT first sample examined	DEF AT	
13540 / 13539	DEF	AT local marker floral increase	DEF AT	
15940 / 15939	DEF	AT local marker floral increase	DEF AT	
16090 / 16089	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT	
16930 / 16928	DEF	AT local marker floral increase	DEF AT	
17770 / 17768	DEF	AT local marker floral increase	DEF AT	
20305 / 20297	DEF	AT last sample examined	DEF AT	

GEOLOGIC 02-FEB-2011 PAGE: 467

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 6850 Date of Summary: 01-MAY-1999 First Sample Examined: Lease Number: G11573 Source of Paleo: OPERATOR **Borehole MD:** 16867 Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16861 **Drilling Operator: CONOCO INC API Well Number:** 608074019500 **Rkb Elevation:** 79 Paleo Report Num: 1 of 3 **Sample Range:** 6850 - 16868 4668 Water Depth: Public Info Code: Y 02-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Magnolia Prospect

MD / TVD		Paleo Top Description		Ec	ozone
6850 / 6849	DEF	AT first sample examined	DEF	AT	5
6851 / 6850	DEF	AT Holocene Globorotalia inflata	DEF	AT	5
6910 / 6909	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
7030 / 7029	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
7630 / 7629	DEF	AT local marker foram decrease	DEF	AT	4
8230 / 8229	DEF	AT faunal change (no faunal increase)	POS	AT	4
9422 / 9421	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9970 / 9969	DEF	AT local marker foram increase	DEF	AT	5
10029 / 10028	POS	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
10030 / 10029	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
10630 / 10629	DEF	AT local marker foram decrease	DEF	AT	4
12070 / 12068	DEF	AT local marker foram increase	DEF	IN	4
12250 / 12248	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13150 / 13148	DEF	AT reworked material	DEF	AT	4
13270 / 13268	DEF	AT local marker foram increase	DEF	AT	5
13480 / 13478	DEF	AT local marker foram increase	DEF	AT	5
13720 / 13718	DEF	AT faunal change (no faunal increase)	POS	AT	4
13990 / 13988	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14050 / 14048	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14110 / 14108	POS	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
14320 / 14318	DEF	AT faunal change (no faunal increase)	POS	AT	5
14449 / 14447	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

468

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GB783Date of Summary:01-MAY-1999First Sample Examined:6850Lease Number:G11573Source of Paleo:OPERATORBorehole MD:16867Well Name:A001Paleo Done By:APPLIED BIOSTRATIGRAPHIXBorehole TVD:16861

 API Well Number:
 608074019500
 Drilling Operator:
 CONOCO INC
 Rkb Elevation:
 79

 Paleo Report Num:
 1 of 3
 Sample Range:
 6850 - 16868
 Water Depth:
 4668

Public Info Code: Y 02-JUN-2009 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description		Eco	zone
15070 / 15068 DE	AT Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	AT	5
15170 / 15168 PO	S IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	5
15240 / 15238 DE	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	4
15330 / 15328 DE	AT faunal change (no faunal increase)	DEF	AT	6
15370 / 15367 PO	S AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	6
15390 / 15387 DE	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	6
15430 / 15427 DE	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	AT	6
15450 / 15447 DE	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	6
15470 / 15467 DE	AT Middle Miocene (Serravallian) Cibicides barnetti	DEF	AT	6
15490 / 15487 DE	F AT gouge	DEF	AT	6
15530 / 15527 DE	AT sample gap top	POS	AT	6
16069 / 16066 DE	AT sample gap bottom	DEF	IN	6
16070 /16067 DE	AT Middle Eocene (Bartonian) Truncorotaloides rohri	DEF	IN	6
16140 / 16137 DE	AT sample gap top	DEF	IN	6
16150 / 16147 DE	AT out-of-place section	POS	IN	6
16780 / 16775 DE	AT Pliocene	DEF	AT	4
16810 / 16805 DE	AT Lower Oligocene (Rupelian) Textularia mississippiensis seligi	DEF	AT	5
16840 / 16834 DE	AT Upper Oligocene (Chattian) Marginulina vaginata	DEF	AT	6
16868 / DE	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

469

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 Date of Summary: 01-MAY-1999 First Sample Examined: 6850 Lease Number: G11573 Source of Paleo: OPERATOR 16867 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16861 **Drilling Operator: ANADARKO PETROLEUM CORPORATION API Well Number:** 608074019500 **Rkb Elevation:** 79 Paleo Report Num: 2 of 3 **Sample Range:** 6850 - 12430 4668 Water Depth: Public Info Code: Y 02-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Magnolia Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6850 / 6849	DEF	AT first sample examined	DEF	AT
6970 / 6969	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
9580 / 9579	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
10030 / 10029	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
10660 / 10659	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10661 / 10660	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
12040 / 12038	DEF	AT local marker floral increase	DEF	AT
12430 / 12428	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 470

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 Date of Summary: 01-MAY-1999 First Sample Examined: 12460 Source of Paleo: OPERATOR 16867 Lease Number: G11573 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16861 **API Well Number:** 608074019500 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **Rkb Elevation:** 79 Sample Range: 12160 - 16868 Paleo Report Num: 3 of 3 4668 Water Depth: Public Info Code: Y 02-JUN-2009 004 **Ecozone Eq MMS:** Paleo ID:

Remark: Magnolia Prospect, calcareous nannofossil report for bypass, 16070=NP17, the sample at 16780 was a mixture of Upper Miocene to Upper Upper Oligocene and rare Eocene nannofossils - the Upper and Middle Miocene specimens are interpreted to be caved, the section below 16810 contains an Upper Oligocene assemblage from the nannofossil zone NP25 - since the Upper Oligocene has been found to be associated with a number of other salt bodies in the Garden Banks area, it is interpreted to be salt-related, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12460 / 12458	DEF	AT first sample examined	DEF	AT
13270 / 13268	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
14110 / 14108	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
15070 / 15068	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
15130 / 15128	DEF	IN Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
15330 / 15328	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
15369 / 15366	DEF	AT condensed section	DEF	AT
15370 / 15367	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
15371 / 15368	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15430 / 15427	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
15450 / 15447	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
15470 / 15467	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
15500 / 15497	DEF	AT salt	DEF	AT
16070 / 16067	DEF	AT Middle Eocene (Lutetian) Sphenolithus spiniger	DEF	AT
16150 / 16147	DEF	AT gouge	DEF	AT
16170 / 16167	DEF	AT salt	DEF	AT
16860 / 16854	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 471

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 13280 Date of Summary: 01-OCT-2000 First Sample Examined: Lease Number: G11573 Source of Paleo: OPERATOR 20339 **Borehole MD:** Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 17513 **API Well Number: 608074022200 Drilling Operator: CONOCO INC Rkb Elevation:** 79 **Sample Range:** 13280 - 20339 Water Depth: Paleo Report Num: 1 of 2 4674 Public Info Code: Y 14-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Magnolia Prospect, calcareous nannofossil report, 17930=Gephyrocapsa margerelli increase, 20243=Reticulofenestra minutula haqii increase,

20331=Reticulofenestra minutula haqii acme, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13280 / 11682	DEF	AT first sample examined	DEF	AT
13460 / 11785	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
14240 / 12230	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
14300 / 12264	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
14600 / 12435	DEF	AT reworked material	DEF	AT
14630 / 12453	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
14660 / 12470	DEF	AT reworked material	DEF	AT
14690 / 12487	DEF	IN Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
16580 / 13830	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
16820 / 14043	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
17930 / 15107	DEF	AT local marker floral increase	DEF	AT
19340 / 16515	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
19370 / 16545	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	AT
19580 / 16755	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
19610 / 16785	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
19640 / 16815	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
19670 / 16845	DEF	AT local marker floral increase	DEF	AT
19730 / 16905	DEF	AT reworked material	DEF	AT
20119 / 17293	POS	AT condensed section	DEF	AT
20120 / 17294	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
20240 / 17414	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT

GEOLOGIC

PAGE: 472

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 Date of Summary: 01-OCT-2000 First Sample Examined: 13280 Lease Number: G11573 Source of Paleo: OPERATOR **Borehole MD:** 20339 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: A002 **Borehole TVD:** 17513 **Drilling Operator: CONOCO INC API Well Number:** 608074022200 **Rkb Elevation:** 79 Paleo Report Num: 1 of 2 Sample Range: 13280 - 20339 4674 Water Depth:

Public Info Code: Y 14-NOV-2010 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
20243 / 17417	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
20321 / 17495	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
20322 / 17496	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies (acme)	DEF	AT
20330 / 17504	DEF	AT Lower Pliocene (Zanclian) Ceratolithus armatus	DEF	AT
20331 / 17505	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
20332 / 17506	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 473

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 Date of Summary: 01-OCT-2000 13280 First Sample Examined: Lease Number: G11573 Source of Paleo: OPERATOR 20339 **Borehole MD:** Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: A002 **Borehole TVD:** 17513 **Drilling Operator: CONOCO INC API Well Number:** 608074022200 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 13280 - 20339 4674 Water Depth: Public Info Code: Y 14-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Magnolia Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
13280 / 11682	DEF	AT first sample examined	DEF	- A	Т
14239 / 12229	POS	AT condensed section	DEF	- A	T 5
14240 / 12230	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	- A	T 5
14241 / 12230	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	- A	T 5
14300 / 12264	DEF	AT Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	- A	T 5
14480 / 12367	DEF	AT	DEF	- A	T 4
14630 / 12453	DEF	AT local marker foram increase	DEF	- A	T 5
15080 / 12724	DEF	AT	POS	3 A	T 4
15140 / 12763	DEF	AT local marker foram decrease	POS	S A	T 4
15260 / 12841	DEF	AT	DEF	- A	T 0
16340 / 13627	DEF	AT	POS	3 A	T 4
16400 / 13677	POS	AT local marker foram increase	POS	S A	T 4
16760 / 13989	DEF	AT local marker foram increase	DEF	- A	T 5
17120 / 14320	DEF	AT	POS	S A	T 4
17480 / 14665	DEF	AT cement	DEF	- A	Т
17780 / 14959	DEF	AT	POS	S A	T 4
17900 / 15077	DEF	AT	POS	S A	T 5
18020 / 15196	DEF	AT	POS	S A	T 4
18260 / 15435	DEF	AT	DEF	- A	T 0
19340 / 16515	DEF	AT local marker foram increase	DEF	- A	T 6
19400 / 16575	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	- A	T 6
19460 / 16635	DEF	AT	POS	S A	T 5

GEOLOGIC 02-FEB-2011 PAGE: 474

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 Date of Summary: 01-OCT-2000 First Sample Examined: 13280 Lease Number: G11573 Source of Paleo: OPERATOR **Borehole MD:** 20339 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: A002 **Borehole TVD:** 17513 **Drilling Operator: CONOCO INC API Well Number:** 608074022200 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 Sample Range: 13280 - 20339 4674 Water Depth:

Public Info Code: Y 14-NOV-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	cozone
19580 / 16755	POS	IN Lower Pleistocene (Calabrian) Angulogerina "B"	POS	AT	5
19640 / 16815	POS	AT reworked material	DEF	AT	6
19700 / 16875	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	AT	6
19730 / 16905	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
19760 / 16935	DEF	AT	DEF	AT	5
19790 / 16965	POS	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
19970 / 17145	DEF	AT	DEF	AT	4
20090 / 17264	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
20120 / 17294	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
20179 / 17353	POS	AT condensed section	DEF	AT	6
20180 / 17354	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	6
20209 / 17383	POS	AT condensed section	DEF	AT	6
20210 / 17384	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
20270 / 17444	DEF	AT	DEF	AT	5
20300 / 17474	POS	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
20339 / 17513	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

475

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 Date of Summary: 01-DEC-2000 First Sample Examined: 17405 Lease Number: G11573 Source of Paleo: OPERATOR **Borehole MD:** 21892 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: A002 **Borehole TVD:** 16813 **Drilling Operator: CONOCO INC API Well Number:** 608074022201 **Rkb Elevation:** 79 Paleo Report Num: 1 of 2 **Sample Range:** 17405 - 21892 4673 Water Depth: Public Info Code: Y 03-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Magnolia Prospect, calcareous nannofossil report, 18120=Gephyrocapsa margerelli increase

MD / TVD		Paleo Top Description		<b>Ecozone</b>
17405 / 14592	DEF	AT first sample examined	DEF	AT
17820 / 14971	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
18120 / 15186	DEF	AT local marker floral increase	DEF	AT
21540 / 16614	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
21541 / 16615	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
21600 / 16647	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
21660 / 16679	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
21720 / 16713	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
21780 / 16747	DEF	IN Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
21840 / 16782	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
21892 / 16813	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 476

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 783 17405 Date of Summary: 01-DEC-2000 First Sample Examined: Lease Number: G11573 Source of Paleo: OPERATOR 21892 **Borehole MD:** Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16813 **Drilling Operator: CONOCO INC API Well Number:** 608074022201 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 17405 - 21892 4673 Water Depth: Public Info Code: Y 03-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Magnolia Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
17405 / 14592	DEF	AT first sample examined	POS	AT	4
17406 / 14593	DEF	IN Lower Pleistocene (Calabrian) Globorotalia incisa	POS	AT	4
17700 / 14870	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
17820 / 14971	DEF	AT reworked material	POS	ΑT	4
18120 / 15186	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	4
18360 / 15311	POS	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	ΑT	4
18600 / 15408	POS	AT local marker foram increase	DEF	ΑT	4
18900 / 15527	DEF	AT reworked material	DEF	ΑT	4
19860 / 15887	DEF	AT reworked material	DEF	ΑT	4
21540 / 16614	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	ΑT	6
21600 / 16647	DEF	AT foram flood	DEF	ΑT	6
21659 / 16679	POS	AT condensed section	DEF	ΑT	6
21660 / 16679	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	6
21661 / 16680	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	6
21892 / 16813	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011 PAGE: 477

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 12880 Date of Summary: 01-JUL-2009 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 17605 **Borehole MD:** Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16117 **Drilling Operator: ANADARKO PETROLEUM CORPORATION API Well Number:** 608074029800 **Rkb Elevation:** 92 **Sample Range:** 12880 - 17605 5330 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description			<u>Eco</u>	zone
12880 / 12310	DEF	AT first sample examined	С	EF	AT	5
13539 / 12896	POS	AT maximum flooding surface	С	EF	AT	5
13540 / 12896	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	С	EF	AT	5
13900 / 13216	POS	AT maximum flooding surface	Γ	EF	AT	5
14170 / 13456	POS	AT maximum flooding surface	Γ	EF	AT	5
14679 / 13906	DEF	AT out-of-place section	Γ	EF	AT	5
14680 / 13907	POS	AT salt weld	Γ	EF	AT	5
15158 / 14326	POS	AT maximum flooding surface	С	EF	AT	5
15159 / 14327	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	С	EF	AT	5
15160 / 14328	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	Γ	EF	AT	5
15220 / 14378	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	С	EF	IN	5
15340 / 14479	DEF	AT	С	EF	AT	5
15490 / 14603	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri		EF	AT	5
16240 / 15166	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"		EF	AT	5
16540 / 15376	POS	AT maximum flooding surface		EF	AT	5
16810 / 15563	DEF	AT	С	EF	IN	5
16900 / 15625	POS	AT maximum flooding surface	Г	EF	IN	5
17199 / 15834	POS	AT maximum flooding surface	С	EF	IN	5
17200 / 15835	POS	IN Upper Pliocene (Gelasian) Globorotalia miocenica	С	EF	IN	5
17229 / 15855	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	С	EF	IN	5
17230 / 15856	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	С	EF	IN	5
17350 / 15939	POS	IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica	С	EF	IN	5

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 478

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 877 Date of Summary: 01-JUL-2009 First Sample Examined: 12880

Lease Number:G21408Source of Paleo:OPERATORBorehole MD:17605Well Name:003Paleo Done By:PALEO-DATA, INC.Borehole TVD:16117

API Well Number: 608074029800 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 92

Paleo Report Num: 1 of 1 Sample Range: 12880 - 17605 Water Depth: 5330

Public Info Code: Y 14-MAR-2010 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description	<u>Ecozone</u>
17410 / 15981	DEF AT	DEF AT 5
17605 / 16117	DEF AT last sample examined	DEF AT 5

GEOLOGIC 02-FEB-2011 PAGE: 479

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 Date of Summary: 30-AUG-2001 7590 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 23518 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 23499 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074023000 **Rkb Elevation:** 46 Paleo Report Num: 1 of 2 **Sample Range:** 7590 - 23518 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7590 / 7590	DEF	AT first sample examined	DEF	AT
7620 / 7620	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
10750 / 10748	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
12460 / 12451	POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
14560 / 14544	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
16990 / 16973	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17260 / 17243	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17470 / 17453	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
17560 / 17543	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
17860 / 17843	POS	IN Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18160 / 18143	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
18760 / 18743	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
18910 / 18893	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
19270 / 19252	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
20080 / 20062	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
21280 / 21262	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
22330 / 22312	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
23259 / 23240	POS	AT unconformity	DEF	AT
23260 / 23241	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
23350 / 23331	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
23380 / 23361	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
23518 / 23499	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 480

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 Date of Summary: 31-AUG-2001 First Sample Examined: 7590 Lease Number: G21408 Source of Paleo: OPERATOR 23518 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 23499 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074023000 **Rkb Elevation:** 46 **Sample Range:** 7590 - 23518 Paleo Report Num: 2 of 2 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
7590 / 7590	DEF	AT first sample examined	DEF	AT	5
10540 / 10539	POS	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
13330 / 13317	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
17440 / 17423	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
17530 / 17513	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
18550 / 18533	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
18910 / 18893	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
19270 / 19252	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
19840 / 19822	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	5
21220 / 21202	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	5
22300 / 22282	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	5
23290 / 23271	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	5
23350 / 23331	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5
23380 / 23361	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	IN	5
23518 / 23499	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011

PAGE: 481

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GB 877	Date of Summary: 16-NOV-2001	First Sample Examined:	14300
Lease Number: G21408	Source of Paleo: OPERATOR	Borehole MD:	20994
Well Name: SS001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	20500
API Well Number: 608074023001	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	46
Paleo Report Num: 1 of 2	Sample Range: 14300 - 20994	Water Depth:	5334
Public Info Code: Y 14-MAR-2010	Ecozone Eq MMS:	Paleo ID:	003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14300 / 14284	DEF AT	first sample examined	DEF	AT
14600 / 14584	DEF AT	Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
17360 / 17182	DEF AT	Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17600 / 17403	DEF AT	Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
18290 / 18042	DEF AT	Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
18410 / 18153	DEF AT	Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
20994 / 20500	DEF AT	last sample examined	DEF	AT

GEOLOGIC

482

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 14300 Date of Summary: 19-NOV-2001 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 20994 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20500 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074023001 **Rkb Elevation:** 46 Paleo Report Num: 2 of 2 **Sample Range:** 14300 - 20994 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		<b>Ecozone</b>
14300 / 14284	DEF AT first sample examined	DEF	AT 5
17360 / 17182	DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT 5
18290 / 18042	DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT 5
20994 / 20500	DEF AT last sample examined	DEF	AT 5

GEOLOGIC 02-FEB-2011

483

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 16000 Date of Summary: 16-NOV-2001 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 21345 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20414 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074023002 **Rkb Elevation:** 46 Paleo Report Num: 1 of 2 **Sample Range:** 16000 - 21340 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
16000 / 15836	DEF	AT first sample examined	DEF	AT
16690 / 16382	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17020 / 16646	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17260 / 16837	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
17350 / 16909	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
17860 / 17326	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17950 / 17402	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
18610 / 17969	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
18730 / 18074	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
19150 / 18446	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
20290 / 19468	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
20320 / 19495	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
20920 / 20036	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
21130 / 20223	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
21250 / 20330	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
21280 / 20356	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
21340 / 20409	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

484

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 Date of Summary: 19-NOV-2001 16000 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 21345 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20414 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074023002 **Rkb Elevation:** 46 Paleo Report Num: 2 of 2 **Sample Range:** 16000 - 21340 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecoz	zone
16000 / 15836	DEF	AT first sample examined	DEF	AT	5
16840 / 16502	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
17680 / 17175	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
17740 / 17225	POS	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
17860 / 17326	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
17950 / 17402	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
17980 / 17428	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
18640 / 17995	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
19690 / 18928	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
21130 / 20223	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
21340 / 20409	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

485

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 Date of Summary: 07-JAN-2003 First Sample Examined: 13900 Lease Number: G21408 Source of Paleo: OPERATOR **Borehole MD:** 18206 Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16546 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074024400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 13900 - 18206 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	ozone
13900 / 13023	DEF	AT first sample examined	DEF	AT	5
14860 / 13809	DEF	IN Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
16569 / 15205	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
16570 / 15206	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
16750 / 15353	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
16840 / 15426	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
16870 / 15450	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
16900 / 15475	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
17470 / 15938	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
18206 / 16546	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

486

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 13900 Date of Summary: 07-JAN-2003 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 18206 **Borehole MD:** Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16546 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074024400 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 13900 - 18206 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
13900 / 13023	DEF	AT first sample examined	DEF	AT
13901 / 13024	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
14860 / 13809	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
15910 / 14663	POS	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
15940 / 14688	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16600 / 15231	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
16750 / 15353	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
16840 / 15426	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
16900 / 15475	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17140 / 15669	POS	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
17620 / 16062	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
18206 / 16546	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

487

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 Date of Summary: 14-JAN-2003 First Sample Examined: 14160 Lease Number: G21408 Source of Paleo: OPERATOR **Borehole MD:** 18153 Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17184 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074024401 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 14160 - 18150 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
14160 / 13241	DEF	AT first sample examined	DEF	AT	5
14680 / 13718	POS	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
17320 / 16352	POS	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
17410 / 16442	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
17650 / 16682	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
17890 / 16921	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
17920 / 16951	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
18150 / 17181	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE:

488

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 14160 Date of Summary: 14-JAN-2003 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR 18153 **Borehole MD:** Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17184 **API Well Number: 608074024401 Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 14160 - 18150 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, from 15790 to 15910, reworked or displaced Miocene to Pleistocene section iincluding Discoaster quinqueramus,

Reticulofenestra pseudoumbilica, and Sphenolithus abies

MD/TVD		Paleo Top Description		<u>Ecozone</u>
14160 / 13241	DEF	AT first sample examined	DEF	AT
14680 / 13718	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
15790 / 14823	POS	AT out-of-place section	DEF	AT
17320 / 16352	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17350 / 16382	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17410 / 16442	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
17650 / 16682	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17770 / 16802	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
17920 / 16951	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
18150 / 17181	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

489

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	GB 877	Date of Summary: 28-FEB-2003	First Sample Examined:	15270
Lease Number:	G21408	Source of Paleo: OPERATOR	Borehole MD:	18933
Well Name:	SS002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	17832
<b>API Well Number:</b>	608074024402	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	82
Paleo Report Num:	1 of 2	Sample Range: 15270 - 18933	Water Depth:	5334
Public Info Code:	Y 14-MAR-2010	Ecozone Eq MMS: Y	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecc</u>	<u>ozone</u>
15270 / 14303	DEF	AT first sample examined	DEF	AT	5
17760 / 16707	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
17820 / 16764	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
18510 / 17426	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
18870 / 17772	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
18933 / 17832	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 490

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 877 Date of Summary: 28-FEB-2003 15270 First Sample Examined: Lease Number: G21408 Source of Paleo: OPERATOR **Borehole MD:** 18933 Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17832 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074024402 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 15270 - 18933 5334 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15270 / 14303	DEF	AT first sample examined	DEF	AT
17760 / 16707	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17790 / 16735	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17820 / 16764	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18510 / 17426	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
18540 / 17454	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
18933 / 17832	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

491

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 921 Date of Summary: 09-JAN-2002 First Sample Examined: 13120 Lease Number: G21409 Source of Paleo: OPERATOR 17814 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16600 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608074023600 **Rkb Elevation:** 46 Paleo Report Num: 1 of 2 **Sample Range:** 13120 - 17815 5301 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
13120 / 12768	DEF	AT first sample examined	DEF	AT	
13121 / 12769	DEF	IN cement	DEF	AT	
13480 / 13056	DEF	AT	DEF	AT	4
16150 / 15213	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
16900 / 15830	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
17590 / 16409	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
17620 / 16434	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
17815 /	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 492

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 921 Date of Summary: 09-JAN-2002 First Sample Examined: 13120 Lease Number: G21409 Source of Paleo: OPERATOR 17814 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16600 **API Well Number:** 608074023600 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 46 Paleo Report Num: 2 of 2 **Sample Range:** 13120 - 17815 5301 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13120 / 12768	DEF	AT first sample examined	DEF	AT
13121 / 12769	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
13720 / 13249	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
16150 / 15213	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
16330 / 15360	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
16930 / 15855	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
17080 / 15980	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
17410 / 16256	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17440 / 16282	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17620 / 16434	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
17815 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 493

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GB 941 Date of Summary: 26-JAN-2000 First Sample Examined: 5290 Lease Number: G20804 Source of Paleo: OPERATOR **Borehole MD:** 21207 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 21166 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608074082200 **Rkb Elevation:** 82 **Sample Range:** 5290 - 21207 Paleo Report Num: 1 of 1 3716 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, 6850=Angulogerina ornata, 8230=base of Globorotalia truncatulinoides

MD / TVD		Paleo Top Description		<u>E</u>	cozone
5290 / 5290	DEF	AT first sample examined	DEF	IN	5
5291 / 5291	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	IN	5
5500 / 5500	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	IN	5
6850 / 6850	POS	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	IN	5
7330 / 7330	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	5
8080 / 8080	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	5
8200 / 8200	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
8230 / 8230	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
8260 / 8260	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
8290 / 8290	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	IN	5
8300 / 8300	DEF	AT salt	DEF	IN	5
16239 / 16234	DEF	AT base of salt	DEF	IN	5
16240 / 16235	POS	IN Eocene	DEF	IN	5
16720 / 16713	DEF	AT salt	DEF	IN	5
17199 / 17190	DEF	AT base of salt	DEF	IN	5
17200 / 17191	POS	IN Upper (Late) Cretaceous	DEF	IN	5
21207 / 21166	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 494

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 112 Date of Summary: 01-FEB-1998 First Sample Examined: 8870 Lease Number: G15545 Source of Paleo: OPERATOR **Borehole MD:** 15048 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13735 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 8870 - 15048 1757 Water Depth: Public Info Code: Y 26-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Angus Prospect

MD / TVD		Paleo Top Description		<u>E</u>	cozone
8870 / 8267	DEF	AT first sample examined	DEF	AT	
9290 / 8608	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	
10190 / 9347	DEF	AT	DEF	AT	4
10250 / 9396	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
10340 / 9471	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
10520 / 9621	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
11239 / 10224	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
11240 / 10225	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	4
11450 / 10402	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	ΑT	5
11510 / 10452	DEF	AT pyrite	DEF	AT	5
11600 / 10528	DEF	AT	DEF	ΑT	4
11720 / 10630	POS	AT reworked material	DEF	IN	3
12740 / 11503	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	POS	IN	3
13220 / 11937	DEF	AT	DEF	IN	4
13340 / 12050	DEF	AT pyrite	DEF	ΑT	5
14030 / 12720	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
14090 / 12780	DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	AT	5
14210 / 12899	POS	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	5
14390 / 13078	DEF	AT	DEF	ΑT	4
14449 / 13137	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
14450 / 13138	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	4
14540 / 13228	DEF	AT local marker planktic foram increase	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

495

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 112 Date of Summary: 01-FEB-1998 First Sample Examined: 8870 Lease Number: G15545 Source of Paleo: OPERATOR **Borehole MD:** 15048 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 002 **Borehole TVD:** 13735 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 8870 - 15048 1757 Water Depth: Public Info Code: Y 26-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
14570 / 13258	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
14600 / 13288	POS	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
14659 / 13347	DEF	AT pyrite	DEF	AT	5
14660 / 13348	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
14840 / 13527	POS	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
15048 / 13735	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 496

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 112 8821 Date of Summary: 01-MAR-1998 First Sample Examined: Lease Number: G15545 Source of Paleo: OPERATOR 15509 **Borehole MD:** Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13288 **API Well Number:** 608114022401 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 8821 - 15545 Water Depth: 1757 Public Info Code: Y 19-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Angus Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	cozone
8821 / 8227	DEF	AT first sample examined	DEF	AT	
10140 / 9192	DEF	AT	DEF	IN	3
10230 / 9248	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	4
10290 / 9286	DEF	AT	DEF	IN	3
10350 / 9324	DEF	AT	DEF	AT	4
10410 / 9362	DEF	AT	DEF	IN	3
10560 / 9457	DEF	AT unconformity	DEF	AT	5
10740 / 9571	DEF	AT pyrite	DEF	AT	5
11100 / 9800	DEF	AT	DEF	AT	4
11520 / 10075	DEF	AT	DEF	AT	5
11610 / 10135	DEF	AT	DEF	AT	4
11730 / 10215	DEF	AT	DEF	AT	5
11850 / 10294	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11880 / 10314	DEF	AT pyrite	DEF	AT	5
12360 / 10630	DEF	AT	DEF	AT	4
12480 / 10710	DEF	AT	DEF	IN	3
12540 / 10749	DEF	AT	DEF	ΑT	4
12600 / 10789	DEF	AT	DEF	AT	5
12780 / 10908	DEF	AT	DEF	AT	4
13200 / 11192	DEF	AT sand	POS	AT	5
13380 / 11320	POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	POS	AT	5
14520 / 12334	DEF	AT sand	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 497

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 112 Date of Summary: 01-MAR-1998 First Sample Examined: 8821 Lease Number: G15545 Source of Paleo: OPERATOR **Borehole MD:** 15509 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13288 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022401 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 8821 - 15545 1757 Water Depth:

Public Info Code: Y 19-MAR-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
14580 / 12392	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
14640 / 12450	POS	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	5
14670 / 12479	DEF	AT pyrite	DEF	AT	5
14700 / 12508	POS	AT unconformity	DEF	AT	4
14818 / 12622	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
14819 / 12623	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	4
14820 / 12624	POS	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	4
15420 / 13202	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
15449 / 13230	DEF	AT pyrite	DEF	AT	5
15450 / 13231	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
15480 / 13260	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
15508 / 13287	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 498

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 112 8821 Date of Summary: 01-MAR-1998 First Sample Examined: Lease Number: G15545 Source of Paleo: OPERATOR 15509 **Borehole MD:** Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13288 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022401 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 8821 - 15508 Water Depth: 1757 Public Info Code: Y 19-MAR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Angus Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8821 / 8227	DEF	AT first sample examined	DEF	AT
8822 / 8228	DEF	AT cement	DEF	AT
9360 / 8661	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
10380 / 9343	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10560 / 9457	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
10590 / 9476	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
10710 / 9551	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11730 / 10215	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
12390 / 10650	DEF	AT reworked material	DEF	AT
12510 / 10730	DEF	AT reworked material	DEF	AT
12810 / 10928	DEF	AT cement	DEF	AT
13380 / 11320	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
13470 / 11388	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
13471 / 11389	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
13919 / 11768	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
13920 / 11769	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
14220 / 12047	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
14730 / 12537	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
14820 / 12624	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies (acme)	DEF	AT
15360 / 13145	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
15420 / 13202	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
15508 / 13287	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 499

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 114 Date of Summary: 01-FEB-2000 6940 First Sample Examined: Lease Number: G20034 Source of Paleo: OPERATOR 14606 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 14545 **Drilling Operator:** DEVON SFS OPERATING INC **API Well Number:** 608114025400 **Rkb Elevation:** 78 **Sample Range:** 6940 - 14590 Paleo Report Num: 1 of 1 2680 Water Depth: Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u>D</u>	Paleo Top Description		<u>Ecozone</u>
940 DEF	AT first sample examined	DEF	AT
240 DEF	IN Upper Pleistocene (Ionian) Helicosphaera inversa	DEF	AT
DEF	IN Middle Pleistocene (Ionian) Gephyrocapsa caribbeanica (increase)	DEF	AT
180 DEF	AT local marker floral increase	DEF	AT
DEF	AT reworked material	DEF	AT
260 DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
110 DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
590 DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
280 DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
174 DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
791 DEF	AT local marker floral increase	DEF	AT
989 DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
)18 DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
DEF	AT local marker floral increase	DEF	AT
DEF	AT last sample examined	DEF	AT
	DEF 240 DEF 300 DEF 480 DEF 540 DEF 260 DEF 410 DEF 280 DEF 280 DEF 474 DEF 503 DEF 791 DEF 289 DEF 218 DEF 218 DEF	DEF AT first sample examined  DEF IN Upper Pleistocene (Ionian) Helicosphaera inversa  DEF IN Middle Pleistocene (Ionian) Gephyrocapsa caribbeanica (increase)  DEF AT local marker floral increase  DEF AT reworked material  DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata  DEF AT Upper Pleistocene (Ionian) Gephyrocapsa aperta  DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)  DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)  DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)  DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B  DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B  DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii  DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii  DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii  DEF AT Lower Pleistocene (Calabrian) Lithostromation perdurum  DEF AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF AT first sample examined DEF AT first sample examined DEF IN Upper Pleistocene (Ionian) Helicosphaera inversa DEF IN Middle Pleistocene (Ionian) Gephyrocapsa caribbeanica (increase) DEF AT local marker floral increase DEF AT reworked material DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata DEF AT Upper Pleistocene (Ionian) Gephyrocapsa aperta DEF AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme) DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme) DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme) DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa Caribbeanica (large) DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii DEF AT Lower Pleistocene (Calabrian) Lithostromation perdurum DEF

GEOLOGIC

PAGE:

500

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 114 Date of Summary: 01-FEB-2000 13540 First Sample Examined: Lease Number: G20034 Source of Paleo: OPERATOR 15864 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 15747 **Drilling Operator:** DEVON SFS OPERATING INC **API Well Number:** 608114025401 **Rkb Elevation:** 85 Paleo Report Num: 1 of 1 **Sample Range:** 13540 - 15864 2685 Water Depth: Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
13540 / 13516	DEF .	AT first sample examined	DEF	AT
13541 / 13517	DEF /	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
13542 / 13518	DEF /	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
13930 / 13894	DEF /	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
14170 / 14125	DEF /	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
14590 / 14530	DEF /	AT local marker floral increase	DEF	AT
14920 / 14846	DEF /	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
15159 / 15074	DEF /	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
15160 / 15075	DEF /	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	AT
15864 / 15747	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 501

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 Date of Summary: 21-JUN-2000 First Sample Examined: 8960 Lease Number: G16698 Source of Paleo: OPERATOR **Borehole MD:** 18442 Well Name: MA001 Paleo Done By: OPERATOR **Borehole TVD:** 17819 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022800 **Rkb Elevation:** 74 **Sample Range:** 3200 - 18442 Paleo Report Num: 1 of 1 1939 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 03-JUL-2008 Paleo ID: 001

Remark: Manatee Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ec	<u>ozone</u>
8960 / 8601	DEF	AT first sample examined	DEF	AT	
8990 / 8628	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	
9100 / 8725	POS	IN Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	AT	
9340 / 8940	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
10929 / 10366	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	4
10930 / 10367	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
12670 / 12048	DEF	AT local marker planktic foram increase	DEF	AT	4
13509 / 12887	POS	AT reworked material	DEF	AT	4
13510 / 12888	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	4
13990 / 13368	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
14020 / 13398	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	4
14290 / 13668	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
14320 / 13698	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
16000 / 15377	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT	4
16269 / 15646	POS	AT reworked material	DEF	AT	4
16270 / 15647	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	4
17319 / 16696	POS	AT unconformity	DEF	AT	4
17320 / 16697	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
17350 / 16727	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	4
17680 / 17057	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	4
17769 / 17146	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	AT	4
17770 / 17147	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 502

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 Date of Summary: 21-JUN-2000 First Sample Examined: 8960 Source of Paleo: OPERATOR Lease Number: G16698 **Borehole MD:** 18442 Well Name: MA001 Paleo Done By: OPERATOR **Borehole TVD:** 17819 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022800 **Rkb Elevation:** 74 Paleo Report Num: 1 of 1 **Sample Range:** 3200 - 18442 1939 Water Depth:

> Public Info Code: Y 03-JUL-2008 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
18129 / 17506	DEF AT Bathysiphon fauna	DEF AT 4
18130 / 17507	DEF AT Cyclammina cancellata (local marker)	DEF AT 4
18442 / 17819	DEF AT last sample examined	DEF AT 4

GEOLOGIC 02-FEB-2011

503

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 16460 Date of Summary: 21-JUN-2000 First Sample Examined: Lease Number: G16698 Source of Paleo: OPERATOR **Borehole MD:** 19910 Well Name: MA001 Paleo Done By: OPERATOR **Borehole TVD:** 19040 **API Well Number: 608114022801 Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 74 Paleo Report Num: 1 of 1 **Sample Range:** 16460 - 19910 1939 Water Depth: Public Info Code: Y 17-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Manatee Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
16460 / 15837	DEF	AT first sample examined	DEF	AT	
16549 / 15926	POS	AT reworked material	DEF	AT	
16550 / 15927	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	
17120 / 16496	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	
17300 / 16674	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
17330 / 16704	DEF	AT unconformity	DEF	ΑT	4
17359 / 16733	DEF	AT reworked material	DEF	AT	4
17360 / 16734	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	ΑT	4
17390 / 16763	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	4
17450 / 16822	DEF	AT reworked material	DEF	ΑT	4
17660 / 17029	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	4
17780 / 17145	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	ΑT	4
18140 / 17490	POS	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	4
18199 / 17546	DEF	AT reworked material	DEF	ΑT	4
18200 / 17547	POS	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	ΑT	4
18320 / 17658	DEF	AT	DEF	IN	4
18860 / 18146	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
19370 / 18588	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	ΑT	4
19430 / 18639	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT	4
19519 / 18715	POS	AT reworked material	DEF	AT	4
19520 / 18715	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
19910 / 19040	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 504

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 Date of Summary: 01-JUN-2000 First Sample Examined: 12990 Lease Number: G16698 Source of Paleo: OPERATOR **Borehole MD:** 19415 17535 Well Name: MA001 Paleo Done By: THOMAS REILLY **Borehole TVD: Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022802 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 12990 - 19415 1932 Water Depth: Public Info Code: Y 22-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Manatee Prospect

MD / TVD		Paleo Top Description		Eco	ozone
12990 / 12243	DEF	AT first sample examined	DEF	AT	4
12991 / 12244	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
13020 / 12268	DEF	IN Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	4
13110 / 12341	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
13980 / 13043	DEF	AT local marker planktic foram increase	DEF	AT	4
14640 / 13584	DEF	AT local marker planktic foram increase	DEF	AT	4
14700 / 13635	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
15030 / 13917	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
16530 / 15190	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
16710 / 15342	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	4
17130 / 15694	DEF	AT Bathysiphon fauna	DEF	AT	4
18195 / 16583	DEF	AT Cyclammina sp. (local marker)	DEF	AT	4
18225 / 16607	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
18615 / 16921	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
18705 / 16992	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
19380 / 17507	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC

505

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 Date of Summary: 03-JUN-2000 First Sample Examined: 12990 Lease Number: G16698 Source of Paleo: OPERATOR **Borehole MD:** 19415 Well Name: MA001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 17535 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022802 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 12990 - 18615 1932 Water Depth: Public Info Code: Y 22-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Manatee Prospect

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12990 / 12243	DEF AT first sample examined	DEF AT
13020 / 12268	DEF IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
14010 / 13068	POS AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
14580 / 13533	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
15870 / 14636	POS AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
16890 / 15495	POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
18255 / 16632	POS AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
18315 / 16680	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
18586 / 16898	POS AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT
18615 / 16921	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 506

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 Date of Summary: 17-JUN-2000 First Sample Examined: 12990 Lease Number: G16698 Source of Paleo: OPERATOR **Borehole MD:** 18297 Well Name: MA001 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 17323 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022803 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 12990 - 18293 1932 Water Depth: Public Info Code: Y 30-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
13080 / 12333	DEF IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
13800 / 12967	POS AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
14370 / 13473	POS AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF AT
16410 / 15435	POS AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF AT
17010 / 16035	POS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT
17520 / 16545	POS AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
17985 / 17010	POS AT Upper Pliocene (Gelasian) Discoaster surculus	DEF AT

GEOLOGIC 02-FEB-2011

507

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 155 Date of Summary: 21-JUN-2000 12990 First Sample Examined: Lease Number: G16698 Source of Paleo: OPERATOR 18297 **Borehole MD:** Well Name: MA001 Paleo Done By: THOMAS REILLY **Borehole TVD:** 17323 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114022803 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 12990 - 18293 1932 Water Depth: Public Info Code: Y 30-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Manatee Prospect

MD / TVD		Paleo Top Description			<u>Ec</u>	ozone
12990 / 12253	DEF	AT first sample examined	DE	F	AT	4
12991 / 12254	DEF	IN Lower Pleistocene (Calabrian) Globorotalia incisa	DE	F	AT	4
13260 / 12492	DEF	IN Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DE	F	AT	4
13770 / 12941	DEF	AT local marker planktic foram increase	DE	F	AT	4
14250 / 13365	DEF	AT local marker planktic foram increase	DE	F	AT	4
15990 / 15018	DEF	AT local marker planktic foram increase	DE	F	AT	4
17550 / 16575	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DE	F	AT	4
17805 / 16830	DEF	AT foram flood	DE	F	AT	4
17835 / 16860	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DE	F	AT	4
17894 / 16919	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DE	F	AT	4
17895 / 16920	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DE	F	AT	4
17925 / 16950	DEF	AT foram flood	DE	F	AT	4
17985 / 17010	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DE	F	AT	4
18120 / 17145	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DE	F	AT	4
18285 / 17310	DEF	AT last sample examined	DE	F	AT	4

GEOLOGIC 02-FEB-2011

508

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 09-APR-2001 First Sample Examined: 14480 Source of Paleo: OPERATOR Lease Number: G07995 **Borehole MD:** 18200 Well Name: A001 Paleo Done By: THOMAS REILLY **Borehole TVD:** 18053 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114026200 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 14480 - 18200 2978 Water Depth: Public Info Code: Y 20-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
14480 / 14463	DEF	AT first sample examined	DEF	IN	3
15560 / 15497	DEF	AT local marker deep water fauna	DEF	AT	4
16099 / 16013	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
16100 / 16014	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
16160 / 16071	POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
16490 / 16388	DEF	AT local marker foram increase	DEF	AT	4
16580 / 16474	DEF	AT faunal change (no faunal increase)	DEF	IN	3
16790 / 16676	DEF	AT local marker deep water fauna	DEF	AT	4
17419 / 17286	DEF	AT Bathysiphon fauna	DEF	AT	4
17420 / 17287	DEF	AT local marker benthic foram increase	DEF	AT	4
17870 / 17728	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
17959 / 17816	DEF	AT foram flood	DEF	AT	4
17960 / 17817	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	AT	4
18020 / 17876	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
18170 / 18023	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 509

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 04-MAY-2001 First Sample Examined: 15200 Source of Paleo: OPERATOR Lease Number: G07995 **Borehole MD:** 18200 Well Name: A001 Paleo Done By: THOMAS REILLY **Borehole TVD:** 18053 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114026200 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 15200 - 18200 2978 Water Depth: Public Info Code: Y 20-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

**Remark:** Analysis of rewashed samples

MD / TVD		Paleo Top Description		Eco	zone
15200 / 15153	DEF	AT first sample examined	DEF	IN	3
15290 / 15239	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
16100 / 16014	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
16160 / 16071	DEF	AT foram flood	DEF	AT	4
16520 / 16417	DEF	AT faunal change (no faunal increase)	DEF	IN	3
16760 / 16647	DEF	AT faunal change (no faunal increase)	DEF	AT	4
17720 / 17581	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
17960 / 17817	DEF	AT local marker foram increase	DEF	AT	4
18020 / 17876	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
18080 / 17935	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
18170 / 18023	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC

510

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 01-APR-1989 First Sample Examined: 12990 Source of Paleo: OPERATOR Lease Number: G07998 **Borehole MD:** 19406 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17824 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608115012300 **Rkb Elevation:** 84 Paleo Report Num: 1 of 4 **Sample Range:** 5100 - 18000 2958 Water Depth: Public Info Code: Y 14-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ec	ozone
12990 / 12408	DEF	AT first sample examined	POS	AT	4
13830 / 13149	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
14369 / 13623	POS	AT reworked material	DEF	AT	4
14370 / 13624	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	4
16190 / 15197	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
17500 / 16273	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
17860 / 16569	DEF	IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
18000 / 16684	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 511

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 22-DEC-1997 First Sample Examined: 11990 Lease Number: G07998 Source of Paleo: OPERATOR 19406 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17824 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608115012300 **Rkb Elevation:** 84 Paleo Report Num: 2 of 4 **Sample Range:** 11990 - 19370 2958 Water Depth: Public Info Code: Y 14-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Paleo done by Bruce Desselle

MD / TVD		Paleo Top Description		Eco	zone
11990 / 11533	DEF	AT first sample examined	POS	IN	2
12530 / 12006	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	2
12590 / 12059	DEF	AT	DEF	AT	3
12620 / 12085	DEF	AT	DEF	IN	3
12660 / 12119	DEF	AT	DEF	AT	4
12710 / 12163	DEF	AT	DEF	AT	3
12770 / 12215	DEF	AT	DEF	IN	2
12800 / 12242	DEF	AT	DEF	AT	3
12950 / 12373	DEF	AT	DEF	IN	3
13010 / 12426	DEF	AT	DEF	AT	3
13340 / 12717	DEF	AT	DEF	IN	2
14180 / 13457	DEF	AT	DEF	AT	2
14750 / 13958	DEF	AT	DEF	IN	2
14780 / 13984	DEF	AT	DEF	IN	3
14840 / 14037	DEF	AT	DEF	AT	3
15020 / 14195	DEF	AT	DEF	IN	2
16040 / 15073	DEF	AT local marker benthic foram increase	DEF	AT	3
16190 / 15197	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	3
17540 / 16305	DEF	AT	DEF	AT	4
17570 / 16330	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
17690 / 16429	DEF	AT	DEF	IN	3
17900 / 16602	DEF	AT	DEF	AT	3

19280 / 17726

19340 / 17773

19370 / 17796

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE:

DEF AT

DEF IN

IN

DEF

4

3

3

512

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 22-DEC-1997 First Sample Examined: 11990 Lease Number: G07998 Source of Paleo: OPERATOR 19406 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17824 API Well Number: 608115012300 **Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC Rkb Elevation:** 84 2958 Paleo Report Num: 2 of 4 **Sample Range:** 11990 - 19370 Water Depth: Public Info Code: Y 14-JAN-2008 **Ecozone Eg MMS:** Y Paleo ID: 001

MD / TVD **Paleo Top Description Ecozone** 18260 / 16898 DEF AT ----DEF IN 2 AT ----2 18380 / 16996 DEF DEF ΑT 18410 / 17021 DEF AT Lower Pleistocene (Calabrian) Uvigerina hispida DEF ΑT 3 DEF AT ----3 18440 / 17045 DEF IN DEF IN 3 18470 / 17070 POS AT Upper Pliocene (Gelasian) Globorotalia miocenica 18680 / 17242 DEF AT local marker foram increase DEF IN 3 DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF AT 19010 / 17512 4 AT Upper Pliocene (Piacenzian) Cibicides grossperforatus DEF IN 3 19100 / 17584 19190 / 17655 DEF AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina DEF AT 4 19216 / 17675 AT Lower Pliocene (Zanclian) Cibicides marsi DEF AT 4 DEF AT Lower Pliocene (Zanclian) Globorotalia margaritae DEF AT 19217 / 17676 4 19218 / 17677 DEF AT Lower Pliocene (Zanclian) Uvigerina rustica DEF AT 4 AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B" DEF AT 19219 / 17678 4 19220 / 17679 DEF AT Lower Pliocene (Zanclian) Globigerina nepenthes DEF AT 4

DEF

DEF

DEF

AT pyrite

AT ----

AT last sample examined

GEOLOGIC 02-FEB-2011 PAGE: 513

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 04-DEC-1998 14720 First Sample Examined: Lease Number: G07998 Source of Paleo: OPERATOR **Borehole MD:** 19406 Well Name: 001 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 17824 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608115012300 **Rkb Elevation:** 84 Paleo Report Num: 3 of 4 **Sample Range:** 14720 - 19406 2958 Water Depth: Public Info Code: Y 14-JAN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
14720 / 13932	DEF	AT first sample examined	DEF	AT
14840 / 14037	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
16040 / 15073	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
17450 / 16231	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
17570 / 16330	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17660 / 16404	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
18830 / 17365	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
19190 / 17655	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
19191 / 17656	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
19250 / 17702	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
19280 / 17726	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
19340 / 17773	DEF	AT salt	DEF	AT
19370 / 17796	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
19371 / 17797	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus (increase)	DEF	AT
19406 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 514

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 158 Date of Summary: 07-JUN-1999 First Sample Examined: 11990 Lease Number: G07998 Source of Paleo: OPERATOR **Borehole MD:** 19406 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17824 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608115012300 **Rkb Elevation:** 84 Paleo Report Num: 4 of 4 **Sample Range:** 7010 - 19406 2958 Water Depth: Public Info Code: Y 14-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>Ecc</u>	zone
11990 / 11533	DEF	AT first sample examined	DEF	AT	
12530 / 12006	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	2
12620 / 12085	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	3
16040 / 15073	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	3
17450 / 16231	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	3
17540 / 16305	POS	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
17570 / 16330	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
17659 / 16403	POS	AT reworked material	DEF	AT	4
17660 / 16404	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	4
18469 / 17069	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	IN	3
18470 / 17070	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	IN	3
19010 / 17512	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	3
19190 / 17655	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	4
19219 / 17678	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
19220 / 17679	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT	4
19250 / 17702	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
19406 /	DEF	AT last sample examined	DEF	AT	4

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 515 PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 4020 Date of Summary: 01-AUG-2003 First Sample Examined: Lease Number: G24159 Source of Paleo: OPERATOR 19309 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 19300 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037600 **Rkb Elevation:** 72 **Sample Range:** 4020 - 19309 1844 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 18-JUN-2009 Ecozone Eq MMS: N Paleo ID: 001

Remark: Tiger Prospect, calcareous nannofossil report, 18050 to 18890=repeat section 1, 18890 to TD=repeat section 2, nannospecies abundance and diversity

chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4020 / 4020	DEF	AT first sample examined	DEF	AT
4130 / 4130	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
4550 / 4550	DEF	AT local marker floral increase	DEF	AT
5090 / 5090	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
5540 / 5540	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa (increase)	DEF	AT
5720 / 5720	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
7130 / 7130	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8360 / 8360	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8480 / 8480	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
9230 / 9230	DEF	IN Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
9589 / 9589	DEF	AT condensed section	DEF	AT
9590 / 9590	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9740 / 9740	DEF	AT sample gap top	DEF	AT
9830 / 9830	DEF	AT sample gap bottom	DEF	AT
9890 / 9890	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
9980 / 9980	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11210 / 11209	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
11479 / 11478	DEF	AT reworked material	DEF	AT
11480 / 11479	POS	AT Lower Pliocene (Zanclian) Discoaster variabilis	DEF	AT
12440 / 12438	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12470 / 12468	DEF	AT local marker floral increase	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 516

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 195 Date of Summary: 01-AUG-2003 First Sample Examined: 4020

Lease Number: G24159 Source of Paleo: OPERATOR Borehole MD: 19309

Well Name 2 004

Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Borehole TVD: 19300

API Well Number: 608114037600 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC Rkb Elevation: 72
Paleo Report Num: 1 of 2 Sample Range: 4020 - 19309 Water Depth: 1844

Public Info Code: Y 18-JUN-2009 Ecozone Eq MMS: N

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12620 / 12618	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DE	F AT
12860 / 12858	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DE	F AT
12890 / 12888	DEF	IN Lower Pliocene (Zanclian) Sphenolithus verensis	DE	F AT
12948 / 12946	POS	AT unconformity	DE	F AT
12949 / 12947	POS	AT condensed section	DE	F AT
12950 / 12948	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies (acme)	DE	F AT
12980 / 12978	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DE	F AT
13040 / 13038	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DE	F AT
13880 / 13877	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DE	F AT
13940 / 13937	DEF	AT local marker floral increase	DE	F AT
14120 / 14117	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DE	F AT
14569 / 14566	POS	AT condensed section	DE	F AT
14570 / 14567	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DE	F AT
14630 / 14627	DEF	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DE	F AT
14720 / 14717	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica "B"	DE	F AT
14780 / 14777	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DE	F AT
14840 / 14837	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DE	F AT
14930 / 14927	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DE	F AT
15170 / 15166	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DE	F AT
15380 / 15376	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DE	F AT
15410 / 15406	DEF	AT floral flood	DE	F AT
15590 / 15586	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DE	F AT
15800 / 15796	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DE	F AT
15980 / 15976	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DE	F AT

GEOLOGIC 02-FEB-2011 PAGE: 517

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-AUG-2003 First Sample Examined: 4020 Lease Number: G24159 Source of Paleo: OPERATOR **Borehole MD:** 19309 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 19300 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037600 **Rkb Elevation:** 72 Paleo Report Num: 1 of 2 **Sample Range:** 4020 - 19309 1844 Water Depth:

Public Info Code: Y 18-JUN-2009 Ecozone Eq MMS: N

MD / TVD		Paleo Top Description		<b>Ecozone</b>
16820 / 16815	DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
17060 / 17055	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
17180 / 17175	DEF	AT reworked material	DEF	AT
17390 / 17385	DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
18050 / 18044	DEF	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
18110 / 18104	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica "B"	DEF	AT
18200 / 18194	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
18365 / 18359	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18410 / 18404	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18500 / 18494	DEF	AT reworked material	DEF	AT
18560 / 18553	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
18800 / 18793	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
18890 / 18883	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
19070 / 19062	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
19280 / 19271	DEF	AT last sample examined	DEF	AT

GEOLOGIC

PAGE:

518

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 4020 Date of Summary: 01-NOV-2003 First Sample Examined: Lease Number: G24159 Source of Paleo: OPERATOR 19309 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 19300 **API Well Number: 608114037600** Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 1844 **Sample Range:** 4020 - 19309 Water Depth: Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Tiger Prospect, two apparent repeat sections of Middle Pliocene age were observed between 18140 to 18890 and 18890 to TD (19309), foram species

abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
4020 / 4020	DEF	AT first sample examined	DEF	AT	4
4100 / 4100	DEF	IN Holocene Globorotalia inflata	DEF	AT	4
4130 / 4130	DEF	AT local marker foram increase	DEF	AT	5
4190 / 4190	DEF	AT	DEF	AT	4
4220 / 4220	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
4580 / 4580	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
4850 / 4850	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
5119 / 5119	DEF	AT pyrite	DEF	AT	4
5120 / 5120	DEF	AT local marker foram increase	DEF	AT	4
5720 / 5720	DEF	AT foram flood	DEF	AT	4
6080 / 6080	DEF	AT	DEF	IN	3
6440 / 6440	DEF	AT	DEF	AT	4
6530 / 6530	DEF	AT local marker planktic foram increase	DEF	AT	4
6800 / 6800	DEF	AT	DEF	AT	5
7160 / 7160	DEF	AT local marker foram increase	DEF	AT	6
7190 / 7190	DEF	AT transported shelf fauna	DEF	AT	6
7310 / 7310	DEF	AT	DEF	AT	5
7400 / 7400	DEF	AT	DEF	AT	4
7430 / 7430	DEF	AT local marker foram increase	DEF	AT	4
8240 / 8240	DEF	AT	POS	AT	4
8330 / 8330	DEF	AT	DEF	AT	6

**GEOLOGIC** 02-FEB-2011 519 PAGE:

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-NOV-2003 First Sample Examined: 4020 Lease Number: G24159 Source of Paleo: OPERATOR 19309 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 19300 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037600 **Rkb Elevation:** 72

> Paleo Report Num: 2 of 2 **Sample Range:** 4020 - 19309 1844 Water Depth:

Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
8360 / 8360	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	6
8420 / 8420	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	6
8480 / 8480	DEF	AT	DEF	AT	5
8780 / 8780	DEF	AT	POS	AT	5
9140 / 9140	DEF	AT	DEF	AT	4
9290 / 9290	DEF	AT local marker deep water fauna	DEF	AT	5
9500 / 9500	DEF	AT	POS	AT	5
9590 / 9590	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	6
9680 / 9680	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	6
9830 / 9830	DEF	AT	DEF	AT	5
9889 / 9889	DEF	IN Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
9890 / 9890	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	ΑT	5
10070 / 10070	DEF	AT	DEF	ΑT	4
10400 / 10400	DEF	AT	POS	AT	4
10850 / 10849	DEF	AT	DEF	AT	5
11210 / 11209	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	ΑT	5
11270 / 11269	DEF	AT	DEF	ΑT	4
11480 / 11479	DEF	AT reworked material	DEF	ΑT	5
11570 / 11569	DEF	AT	DEF	ΑT	4
11750 / 11749	DEF	AT	DEF	ΑT	5
11810 / 11809	DEF	AT	POS	ΑT	5
12410 / 12408	DEF	AT	DEF	ΑT	6
12439 / 12437	DEF	AT condensed section	DEF	AT	6
12440 / 12438	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	6

**GEOLOGIC** 02-FEB-2011 PAGE: 520

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-NOV-2003 First Sample Examined: 4020 Lease Number: G24159 Source of Paleo: OPERATOR **Borehole MD:** 19309 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 19300 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037600 **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 4020 - 19309 1844 Water Depth:

Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
12469 / 12467	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	6
12470 / 12468	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	6
12650 / 12648	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	6
12800 / 12798	DEF	AT	DEF	AT	4
12860 / 12858	DEF	AT	DEF	AT	5
12950 / 12948	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
13100 / 13098	DEF	AT	DEF	AT	4
13460 / 13458	DEF	AT	DEF	AT	5
13519 / 13517	DEF	AT pyrite	DEF	AT	5
13520 / 13518	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
13580 / 13578	DEF	AT	DEF	AT	4
13700 / 13697	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
13820 / 13817	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
13879 / 13876	DEF	AT limestone	DEF	AT	5
13880 / 13877	DEF	AT local marker foram increase	DEF	AT	5
14150 / 14147	DEF	AT	DEF	AT	4
14300 / 14297	DEF	AT	POS	AT	4
14510 / 14507	DEF	AT local marker benthic foram increase	DEF	AT	4
14600 / 14597	DEF	AT	DEF	AT	5
14720 / 14717	DEF	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	AT	5
14930 / 14927	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
15080 / 15077	DEF	AT	DEF	AT	4
15200 / 15196	POS	AT reworked material	DEF	AT	5
15230 / 15226	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 521

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 First Sample Examined: 4020 Date of Summary: 01-NOV-2003 Lease Number: G24159 Source of Paleo: OPERATOR **Borehole MD:** 19309 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 19300 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037600 **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 4020 - 19309 1844 Water Depth:

Public Info Code: Y 18-JUN-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco	ozone
15439 / 15435	DEF	AT Bathysiphon fauna	DEF	AT	5
15440 / 15436	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	5
15860 / 15856	DEF	AT	DEF	AT	4
15980 / 15976	DEF	AT	DEF	AT	5
16100 / 16096	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
16160 / 16155	DEF	AT	DEF	AT	4
16310 / 16305	DEF	IN Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	AT	4
16670 / 16665	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
16790 / 16785	DEF	AT Bathysiphon fauna	DEF	AT	5
17000 / 16995	POS	AT condensed section	DEF	AT	5
17030 / 17025	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	5
17060 / 17055	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	AT	5
17090 / 17085	DEF	AT local marker deep water fauna	DEF	AT	5
17150 / 17145	DEF	AT	DEF	AT	4
17210 / 17205	DEF	AT reworked material	DEF	AT	4
17300 / 17295	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
17330 / 17325	DEF	AT	DEF	AT	5
17360 / 17355	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
17540 / 17535	DEF	AT local marker foram decrease	DEF	AT	4
17975 / 17969	DEF	AT	POS	AT	4
18110 / 18104	DEF	AT	DEF	AT	4
18138 / 18132	DEF	AT out-of-place section	DEF	AT	6
18139 / 18133	DEF	AT foram flood	DEF	AT	6
18140 / 18134	POS	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	ΑT	6

**GEOLOGIC** 02-FEB-2011 522

PAGE:

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-NOV-2003 First Sample Examined: 4020 Lease Number: G24159 Source of Paleo: OPERATOR **Borehole MD:** 19309 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 19300 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037600 **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 4020 - 19309 1844 Water Depth:

Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
18200 / 18194	DEF	AT local marker foram increase	DEF	AT	6
18320 / 18314	DEF	AT	DEF	AT	4
18410 / 18404	DEF	AT Eggerella 3 (local marker)	DEF	ΑT	5
18470 / 18464	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
18620 / 18613	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	5
18888 / 18881	DEF	AT out-of-place section	DEF	IN	6
18889 / 18882	DEF	AT foram flood	DEF	IN	6
18890 / 18883	POS	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	IN	6
18990 / 18982	DEF	AT local marker foram increase	DEF	IN	6
19010 / 19002	DEF	AT	DEF	ΑT	5
19190 / 19182	DEF	AT Eggerella 3 (local marker)	DEF	ΑT	5
19250 / 19241	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
19309 / 19300	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

523

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-SEP-2003 15840 First Sample Examined: Lease Number: G24159 Source of Paleo: OPERATOR 19400 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18577 **API Well Number:** 608114037601 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **Rkb Elevation:** 72 Paleo Report Num: 1 of 2 **Sample Range:** 15840 - 19400 1844 Water Depth: Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Tiger Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
15840 / 15836	DEF AT first sample examined	DEF AT
15841 / 15837	DEF IN Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF AT
15900 / 15896	DEF IN Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF AT
16020 / 16015	DEF AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF AT
16890 / 16849	DEF IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF AT
17280 / 17180	DEF AT Upper Miocene (Tortonian) Minylitha convallis	DEF AT
19400 / 18577	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 524

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-OCT-2003 First Sample Examined: 15840 Lease Number: G24159 Source of Paleo: OPERATOR 19400 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18577 **API Well Number: 608114037601** Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 15840 - 19400 Water Depth: 1844 Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Y 002 Paleo ID:

Remark: Tiger Prospect, due to the Middle Pliocene repeat section as well as the occurrence of older Miocene foram markers, the section below 17090 in the original hole (GC195#1) does not correlate with the lower portion (below Tritaxilina atlantica at 17370) of the sidetrack, correlations of markers between the original hole and the sidetrack are summarized in the consultant report on the sidetrack, foram species abundance and diversity chart available, see report for details

Paleo Top Description		Ecc	<u>ozone</u>
AT first sample examined	DEF	IN	4
IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	4
AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	4
AT	DEF	AT	5
AT Arenaceous fauna (local marker)	DEF	AT	5
AT Upper Miocene (Messinian) Textularia tatumi	DEF	IN	5
AT	DEF	AT	5
AT	DEF	IN	4
AT transported shelf fauna	DEF	IN	4
AT limestone	DEF	IN	4
AT	DEF	AT	5
AT local marker benthic foram increase	DEF	AT	4
AT Bathysiphon fauna	DEF	AT	4
S AT ash	DEF	AT	4
AT Arenaceous fauna (local marker)	DEF	AT	5
AT Upper Miocene (Tortonian) Planulina renzi	DEF	AT	5
AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	6
AT	DEF	AT	5
AT Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	5
FFFFFFFFSFFF	F AT first sample examined F IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B" F AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left) F AT F AT Arenaceous fauna (local marker) F AT Upper Miocene (Messinian) Textularia tatumi F AT F AT F AT transported shelf fauna F AT transported shelf fauna F AT limestone F AT F AT local marker benthic foram increase F AT Bathysiphon fauna S AT ash F AT Arenaceous fauna (local marker) F AT Upper Miocene (Tortonian) Planulina renzi F AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left) F AT	AT first sample examined F AT Upper Miocene (Zanclian) Globigerina druryi / nepenthes "B" F AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left) DEF F AT PEF F AT Arenaceous fauna (local marker) DEF F AT Upper Miocene (Messinian) Textularia tatumi DEF F AT DEF F AT DEF F AT DEF F AT ransported shelf fauna DEF F AT limestone DEF F AT local marker benthic foram increase DEF F AT Bathysiphon fauna DEF F AT Bathysiphon fauna DEF F AT Arenaceous fauna (local marker) DEF F AT Upper Miocene (Tortonian) Planulina renzi DEF F AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left) DEF F AT DEF	F AT first sample examined  F IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"  F AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)  F AT  DEF AT  AT Arenaceous fauna (local marker)  F AT Upper Miocene (Messinian) Textularia tatumi  DEF IN  AT  DEF AT  AT transported shelf fauna  DEF IN  AT limestone  AT limestone  AT local marker benthic foram increase  AT at Bathysiphon fauna  DEF AT  AT AT At Bathysiphon fauna  DEF AT  AT AT Arenaceous fauna (local marker)  AT Upper Miocene (Tortonian) Planulina renzi  AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)  DEF AT  DEF AT  DEF AT  DEF AT  DEF AT

**GEOLOGIC** 02-FEB-2011

525

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 195 Date of Summary: 01-OCT-2003 First Sample Examined: 15840 Lease Number: G24159 Source of Paleo: OPERATOR **Borehole MD:** 19400 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 18577 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114037601 **Rkb Elevation:** 72 1844

Paleo Report Num: 2 of 2 **Sample Range:** 15840 - 19400 Water Depth:

Public Info Code: Y 18-JUN-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
17700 / 17491	DEF	AT	DEF	AT	4
18180 / 17792	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
18480 / 17977	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
18930 / 18263	DEF	AT local marker benthic foram increase	DEF	AT	4
19050 / 18342	DEF	IN Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	4
19080 / 18362	DEF	AT local marker benthic foram increase	DEF	AT	4
19140 / 18402	DEF	AT local marker benthic foram increase	DEF	AT	4
19320 / 18523	DEF	AT Bathysiphon fauna	DEF	AT	4
19400 / 18577	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 526

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 23-JUL-1998 3400 First Sample Examined: Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 9224 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 9221 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114021400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 3400 - 9130 1965 Water Depth: Public Info Code: Y 27-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	<u> </u>	Paleo Top Description		<u>Eco</u>	zone
3400 / 339	9 DEF	AT first sample examined	DEF	AT	
3700 / 369	8 DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	
5200 / 519	8 DEF	AT	DEF	AT	4
5260 / 525	8 DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
5440 / 543	8 DEF	AT transported shelf fauna	POS	AT	4
5680 / 567	8 DEF	AT	DEF	AT	4
5770 / 576	8 DEF	AT sample gap top	POS	AT	4
6520 / 651	8 DEF	AT sample gap bottom	DEF	AT	5
8169 / 816	7 DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	5
8170 / 816	8 DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
9130 / 912	8 DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 527

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 23-JUL-1998 5810 First Sample Examined: Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 17616 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17000 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114021401 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 5810 - 17616 1965 Water Depth: Public Info Code: Y 12-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
5810 / 5808	DEF	AT first sample examined	DEF	AT	
7990 / 7982	DEF	AT	DEF	AT	5
8110 / 8102	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
8230 / 8222	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	5
9580 / 9572	DEF	AT	POS	AT	5
10030 /10022	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	AT	5
10510 / 10502	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	POS	AT	5
11080 / 11072	DEF	AT	DEF	AT	5
12550 / 12541	DEF	AT transported shelf fauna	POS	AT	5
13240 / 13206	DEF	AT transported outer shelf facies	POS	AT	5
13660 / 13586	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
13780 / 13693	DEF	AT transported shelf fauna	POS	AT	6
13840 / 13746	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	POS	AT	6
14110 / 13982	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	POS	AT	6
14260 / 14110	DEF	AT	DEF	AT	5
14500 / 14313	DEF	AT	DEF	AT	4
14920 / 14668	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	5
15160 / 14871	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	6
15460 / 15126	DEF	AT	DEF	AT	5
15790 / 15406	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5
16060 / 15634	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	5
17020 / 16466	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	ΑT	5

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 528

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 236 Date of Summary: 23-JUL-1998 First Sample Examined: 5810

Lease Number:G15562Source of Paleo:OPERATORBorehole MD:17616Well Name:001Paleo Done By:OPERATORBorehole TVD:17000API Well Number:608114021401Drilling Operator:CHEVRON USA INC.Rkb Elevation:82

API Well Number: 608114021401 Drilling Operator: CHEVRON USA INC Rkb Elevation: 82
Paleo Report Num: 1 of 1 Sample Range: 5810 - 17616 Water Depth: 1965

Public Info Code: Y 12-JUN-2008 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVDPaleo Top DescriptionEcozone17616 / 17000DEF AT last sample examinedDEF AT 5

GEOLOGIC 02-FEB-2011

529

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 23-JUL-1998 First Sample Examined: 14910 Source of Paleo: OPERATOR Lease Number: G15562 **Borehole MD:** 15552 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 15226 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114021402 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 14910 - 15540 1965 Water Depth: Public Info Code: Y 18-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: No diagnostic foram markers noted

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
14910 / 14660	DEF	AT first sample examined	DEF	AT	5
15540 / 15216	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

530

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 23-JUL-1998 First Sample Examined: 11870 Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 15715 15179 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: CHEVRON USA INC API Well Number:** 608114021403 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 11870 - 15715 1965 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 27-JUN-2008 Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ecoz	zone
11870 / 11862	DEF	AT first sample examined	POS	AT	4
11871 / 11863	DEF	IN transported shelf fauna	POS	AT	4
12170 / 12162	DEF	AT	DEF	AT	4
12290 / 12281	DEF	AT	DEF	AT	5
12950 / 12925	DEF	AT transported inner shelf facies	POS	AT	5
13190 / 13150	DEF	IN transported inner shelf facies	POS	AT	5
13459 / 13392	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	6
13460 / 13393	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
13550 / 13470	DEF	AT	DEF	AT	5
13610 / 13521	DEF	AT transported shelf fauna	POS	AT	5
13910 / 13759	DEF	AT	DEF	AT	4
14240 / 14013	DEF	AT	DEF	AT	5
14600 / 14291	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	5
14720 / 14385	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	5
14780 / 14432	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5
14840 / 14479	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	6
14930 / 14549	DEF	AT	DEF	AT	5
15050 / 14644	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
15715 / 15171	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 531

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 23-JUL-1998 First Sample Examined: 11800 Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 15307 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 15298 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114021404 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 11800 - 15260 1965 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 05-JUL-2008 Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description			<b>Ecozone</b>	
11800 / 11792	DEF	AT first sample examined	DEF	A	Т	
13310 / 13302	DEF	AT	POS	6 A	T 4	
13460 / 13452	DEF	AT	DEF	A	T 6	
13520 / 13512	DEF	AT transported shelf fauna	POS	6 A	T 6	
13580 / 13572	DEF	AT transported shelf fauna	POS	6 A	T 6	
13880 / 13871	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	A	T 5	
13910 / 13901	DEF	IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	A	T 5	
14360 / 14351	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	A	T 5	
14450 / 14441	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	A	T 5	
14749 / 14740	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	A	T 5	
14750 / 14741	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	A	T 5	
15050 / 15041	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	A	T 5	
15260 / 15251	DEF	AT last sample examined	DEF	A	T 5	

GEOLOGIC 02-FEB-2011 PAGE: 532

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 14-OCT-1999 11640 First Sample Examined: Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 23508 Well Name: 002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 23277 **Drilling Operator:** CHEVRON USA INC **API Well Number:** 608114025200 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 11640 - 23508 1987 Water Depth: Public Info Code: Y 11-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Typhoon Prospect

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
11640 / 11639	DEF	AT first sample examined	DEF	AT	3
11670 / 11669	POS	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	3
12000 / 11999	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	3
12030 / 12029	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	3
12060 / 12059	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
12180 / 12179	DEF	AT faunal change (no faunal increase)	DEF	IN	3
13200 / 13199	DEF	AT local marker foram increase	DEF	IN	3
13440 / 13439	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	3
13920 / 13919	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
14040 / 14039	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14070 / 14069	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14100 / 14099	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14160 / 14159	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14459 / 14458	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	ΑT	4
14460 / 14459	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	4
14490 / 14489	DEF	AT foram flood	DEF	ΑT	5
14550 / 14549	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	4
14580 / 14579	DEF	AT Cyclammina cancellata (local marker)	DEF	IN	4
14640 / 14639	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14910 / 14909	DEF	AT faunal change (no faunal increase)	DEF	IN	3
15060 / 15059	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15120 / 15119	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	4

**GEOLOGIC** 02-FEB-2011

533

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 14-OCT-1999 First Sample Examined: 11640 Source of Paleo: OPERATOR Lease Number: G15562 **Borehole MD:** 23508 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 002 **Borehole TVD:** 23277 **Drilling Operator:** CHEVRON USA INC **API Well Number:** 608114025200 **Rkb Elevation:** 78

> Paleo Report Num: 1 of 2 **Sample Range:** 11640 - 23508 1987 Water Depth:

Public Info Code: Y 11-NOV-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
15180 / 15179	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15210 / 15209	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
15300 / 15299	DEF	AT local marker planktic foram increase	DEF	IN	4
15359 / 15358	DEF	AT	DEF	IN	4
15360 / 15359	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	4
15480 / 15479	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15780 / 15778	DEF	AT local marker foram increase	DEF	AT	4
15840 / 15838	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	4
15900 / 15898	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	4
16020 / 16018	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
16080 / 16078	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	4
16110 / 16108	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
16260 / 16258	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
16380 / 16377	DEF	AT faunal change (no faunal increase)	DEF	IN	4
16410 / 16407	DEF	AT faunal change (no faunal increase)	DEF	IN	3
16530 / 16527	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
16560 / 16557	DEF	AT local marker foram increase	DEF	IN	4
16710 / 16707	DEF	AT faunal change (no faunal increase)	DEF	AT	4
16740 / 16737	DEF	AT local marker foram increase	DEF	AT	5
16770 / 16767	DEF	AT faunal change (no faunal increase)	DEF	IN	4
16980 / 16977	DEF	AT local marker benthic foram increase	DEF	IN	4
17010 / 17007	DEF	AT faunal change (no faunal increase)	DEF	AT	4
17460 / 17455	DEF	AT faunal change (no faunal increase)	DEF	IN	3
17550 / 17545	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	IN	3

GEOLOGIC 02-FEB-2011 PAGE: 534

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 14-OCT-1999 First Sample Examined: 11640 Source of Paleo: OPERATOR Lease Number: G15562 **Borehole MD:** 23508 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 002 **Borehole TVD:** 23277 **Drilling Operator:** CHEVRON USA INC **API Well Number:** 608114025200 **Rkb Elevation:** 78

> Paleo Report Num: 1 of 2 Sample Range: 11640 - 23508 Water Depth: 1987

Public Info Code: Y 11-NOV-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>Ecozone</u>
18030 / 18024	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18090 / 18084	DEF	AT local marker foram increase	DEF	AT	4
18180 / 18174	DEF	AT local marker foram increase	DEF	ΑT	4
18840 / 18828	DEF	AT faunal change (no faunal increase)	DEF	IN	3
19110 / 19093	POS	AT reworked material	DEF	ΑT	4
19200 / 19181	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	ΑT	4
19290 / 19268	DEF	AT faunal change (no faunal increase)	DEF	IN	3
20010 / 19950	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
20039 / 19977	POS	AT Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	ΑT	4
20040 / 19978	POS	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	ΑT	4
20580 / 20484	DEF	AT faunal change (no faunal increase)	DEF	IN	3
20850 / 20738	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
21000 / 20879	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	4
21330 / 21190	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	4
21450 / 21304	POS	AT local marker foram increase	DEF	ΑT	4
22230 / 22046	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	4
22350 / 22161	DEF	AT faunal change (no faunal increase)	DEF	IN	3
22440 / 22248	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
23320 / 23095	POS	AT local marker foram increase	DEF	ΑT	4
23508 / 23277	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 535

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 10-FEB-2000 11640 First Sample Examined: Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 23508 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 23277 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114025200 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 11640 - 23508 1987 Water Depth: Public Info Code: Y 11-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Typhoon Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Eco	ozone
11640 / 11639	DEF	AT first sample examined	DEF	AT	
11670 / 11669	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	
11730 / 11729	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	
12060 / 12059	DEF	AT	DEF	AT	5
13200 / 13199	DEF	AT	DEF	AT	4
13470 / 13469	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
13950 / 13949	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	5
14130 / 14129	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	5
14280 / 14279	DEF	AT	DEF	AT	4
14460 / 14459	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
14490 / 14489	DEF	AT	DEF	AT	6
14550 / 14549	DEF	AT	DEF	AT	5
14580 / 14579	DEF	AT	DEF	AT	4
14640 / 14639	DEF	AT	DEF	AT	5
14820 / 14819	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	5
15060 / 15059	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5
15120 / 15119	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
15210 / 15209	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
15480 / 15479	DEF	AT	DEF	AT	4
15840 / 15838	DEF	AT	DEF	AT	5
15930 / 15928	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	5
15960 / 15958	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5

GEOLOGIC 02-FEB-2011

536

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 10-FEB-2000 First Sample Examined: 11640 Source of Paleo: OPERATOR Lease Number: G15562 **Borehole MD:** 23508 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 23277 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114025200 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 11640 - 23508 1987 Water Depth:

Public Info Code: Y 11-NOV-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ī	Ecozone
16410 / 16407	DEF	AT	DEF	AT	4
16530 / 16527	DEF	AT	DEF	AT	5
17010 / 17007	DEF	AT	DEF	AT	4
17520 / 17515	DEF	AT	DEF	ΑT	5
17580 / 17575	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	5
18240 / 18233	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	ΑT	5
18810 / 18799	DEF	AT	DEF	ΑT	4
19110 / 19093	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	4
19170 / 19152	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	4
19320 / 19297	DEF	AT	DEF	IN	4
19470 / 19441	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	IN	4
20640 / 20541	DEF	AT	DEF	AT	3
20700 / 20597	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	3
20880 / 20767	DEF	AT	DEF	ΑT	5
21240 / 21105	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	ΑT	5
21300 / 21162	DEF	AT	DEF	ΑT	4
22230 / 22046	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	ΑT	4
23080 / 22863	DEF	AT Upper Miocene (Tortonian) Discoaster praebollii	DEF	AT	4
23320 / 23095	DEF	AT	DEF	AT	5
23470 / 23240	DEF	AT	DEF	AT	4
23508 / 23277	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 537

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 236 Date of Summary: 10-FEB-2000 First Sample Examined: 13410 Lease Number: G15562 Source of Paleo: OPERATOR **Borehole MD:** 15960 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 15636 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114025201 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 13410 - 15960 1987 Water Depth: Public Info Code: Y 28-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Typhoon Prospect, company-integrated foram and nanno report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecoz	zone
13410 / 13270	DEF	AT first sample examined	POS	AT	4
13710 / 13543	DEF	AT	DEF	AT	4
14040 / 13847	DEF	AT	DEF	AT	5
14070 / 13875	DEF	AT transported shelf fauna	POS	AT	5
14460 / 14237	DEF	AT	DEF	AT	4
14610 / 14378	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14640 / 14406	DEF	AT	DEF	AT	6
14670 / 14434	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	6
14730 / 14491	DEF	AT	DEF	IN	4
14850 / 14604	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	IN	4
15180 / 14914	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
15270 / 14998	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	5
15540 / 15249	DEF	AT	DEF	AT	4
15630 / 15332	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	4
15810 / 15498	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
15960 / 15636	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 538

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 237 Date of Summary: 10-FEB-1999 5100 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G15563 **Borehole MD:** 14085 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 13921 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114023100 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 5100 - 14060 2025 Water Depth: Public Info Code: Y 17-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
5100 / 5100	DEF	AT first sample examined	DEF	AT	3
5101 / 5101	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	3
5250 / 5250	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	3
5370 / 5370	DEF	AT	DEF	AT	4
6870 / 6870	DEF	AT	DEF	AT	5
7170 / 7170	DEF	AT	DEF	AT	4
8130 / 8130	DEF	AT	DEF	AT	5
8370 / 8370	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	6
8400 / 8400	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	6
8490 / 8490	DEF	AT	DEF	AT	5
10440 / 10440	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	5
11750 / 11750	DEF	AT transported shelf fauna	POS	AT	5
12630 / 12616	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	POS	AT	5
12650 / 12635	DEF	AT	DEF	AT	4
13250 / 13197	DEF	AT transported inner shelf facies	POS	AT	4
13550 / 13471	DEF	AT	DEF	AT	6
13670 / 13577	DEF	AT	DEF	AT	4
14030 / 13878	DEF	AT	DEF	AT	5
14060 / 13902	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 539

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 237 Date of Summary: 10-FEB-1999 First Sample Examined: 12390 Source of Paleo: OPERATOR Lease Number: G15563 **Borehole MD:** 17810 17088 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: CHEVRON USA INC API Well Number:** 608114023101 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 12390 - 17800 2025 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 20-JAN-2009 Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description			Eco	zone
12390 / 12385	DEF	AT first sample examined	DEF	A	Т	4
12870 / 12845	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	Α	Т	5
12990 / 12957	DEF	AT	DEF	. IN	1	4
13950 / 13804	DEF	AT	DEF	Α	Т	5
15020 / 14720	DEF	AT	DEF	. IN	1	4
15320 / 14977	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	Α	Т	5
15920 / 15493	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	A	Т	5
16865 / 16308	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	A	Т	5
16909 / 16345	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	A	Т	5
16910 / 16346	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	Α	Т	5
17470 / 16809	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	Α	Т	5
17530 / 16858	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	Α	Т	5
17560 / 16883	DEF	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	A	Т	5
17800 / 17080	DEF	AT last sample examined	DEF	Α	Т	5

GEOLOGIC 02-FEB-2011 PAGE: 540

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 237 Date of Summary: 27-SEP-1999 First Sample Examined: 14176 Source of Paleo: OPERATOR Lease Number: G15563 **Borehole MD:** 17185 17094 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator:** CHEVRON USA INC **API Well Number:** 608114024100 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 14176 - 17185 2025 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 04-MAY-2009 Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ecc	ozone
14176 / 14121	DEF	AT first sample examined	POS	AT	5
14177 / 14122	DEF	IN transported shelf fauna	POS	AT	5
14200 / 14144	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	POS	AT	5
14680 / 14611	DEF	AT	DEF	AT	5
14950 / 14875	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
15310 / 15229	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	5
15430 / 15347	DEF	AT	DEF	AT	4
15670 / 15584	DEF	AT	DEF	AT	5
15910 / 15821	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	5
15911 / 15822	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
16090 / 16000	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	5
16390 / 16299	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	4
16660 / 16569	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
16870 / 16778	DEF	AT	DEF	AT	5
16930 / 16838	DEF	AT gray shale	DEF	AT	5
17050 / 16958	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5
17185 / 17093	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

541

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 237 Date of Summary: 14-OCT-1999 14000 First Sample Examined: Lease Number: G15563 Source of Paleo: OPERATOR **Borehole MD:** 19205 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 17841 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114024700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 14000 - 19205 1985 Water Depth: Public Info Code: Y 26-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ecoz	one
14000 / 13502	DEF	AT first sample examined	POS	IN	4
14001 / 13503	DEF	IN transported inner shelf facies	POS	IN	4
14180 / 13651	DEF	AT	DEF	IN	4
14270 / 13725	DEF	AT transported shelf fauna	POS	IN	4
14630 / 14021	DEF	AT	DEF	IN	4
15160 / 14460	DEF	AT	DEF .	AT	3
15700 / 14918	DEF	AT	DEF	IN	4
16060 / 15225	DEF	AT salt	POS	IN	4
16150 / 15300	DEF	AT	DEF A	AT	3
16200 / 15341	DEF	AT base of salt	POS A	AT	3
16690 / 15748	DEF	AT	DEF A	AT	4
16960 / 15972	DEF	AT transported outer shelf facies	POS A	AT	4
17050 / 16047	DEF	AT	DEF A	AT	6
17140 / 16122	DEF	AT transported shelf fauna	POS A	AT	6
17560 / 16462	DEF	AT	DEF A	AT	4
17650 / 16533	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF A	AT	6
17740 / 16605	DEF	AT transported outer shelf facies	POS A	AT	6
18220 / 16999	DEF	IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF A	AT	4
18400 / 17151	DEF	AT transported outer shelf facies	POS A	AT	4
18670 / 17377	DEF	AT	DEF A	AT	4
18850 / 17531	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF .	AT	6
19030 / 17687	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF /	AT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 542

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 237 Date of Summary: 14-OCT-1999 First Sample Examined: 14000

Lease Number:G15563Source of Paleo:OPERATORBorehole MD:19205Well Name:003Paleo Done By:OPERATORBorehole TVD:17841

API Well Number: 608114024700 Drilling Operator: CHEVRON USA INC

Paleo Report Num: 1 of 1 Sample Range: 14000 - 19205 Water Depth: 1985

Public Info Code: Y 26-JUN-2009 Ecozone Eq MMS: Y Paleo ID: 001

 MD / TVD
 Paleo Top Description
 Ecozone

 19090 / 17740
 DEF AT ---- DEF AT 6

 19205 / 17841
 DEF AT last sample examined
 DEF AT 6

GEOLOGIC 02-FEB-2011 PAGE: 543

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 237 Date of Summary: 14-OCT-1999 15190 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G15563 **Borehole MD:** 19104 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 17885 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114024701 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 15190 - 19104 1985 Water Depth: Public Info Code: Y 15-JUL-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
15190 / 14484	DEF AT first sample examined	POS AT 5
17500 / 16459	DEF AT transported shelf fauna	POS AT 5
17680 / 16611	DEF AT transported shelf fauna	POS AT 5
17800 / 16712	DEF IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT 5
17830 / 16737	DEF AT	DEF AT 6
17920 / 16812	DEF AT transported outer shelf facies	POS AT 6
18190 / 17045	DEF AT	DEF AT 5
18250 / 17097	DEF IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF AT 5
18280 / 17124	DEF AT transported outer shelf facies	POS AT 5
18460 / 17286	DEF AT	DEF IN 4
18730 / 17536	DEF AT	DEF AT 3
18820 / 17619	DEF AT	DEF IN 4
18910 / 17703	DEF IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF IN 4
19090 / 17872	DEF IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF IN 4
19104 / 17885	DEF AT last sample examined	DEF IN 4

GEOLOGIC 02-FEB-2011 PAGE: 544

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 237 Date of Summary: 10-FEB-2000 First Sample Examined: 16120 Lease Number: G15563 Source of Paleo: OPERATOR **Borehole MD:** 18665 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 17677 **Drilling Operator: CHEVRON USA INC API Well Number:** 608114024702 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 16120 - 18665 2025 Water Depth: Public Info Code: Y 09-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
16120 / 15291	DEF	AT first sample examined	DEF	IN	3
16900 / 15993	DEF	AT	DEF A	AT	4
17080 / 16159	DEF	AT	DEF A	AT	5
17590 / 16632	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF A	AT	5
17800 / 16828	DEF	IN Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF A	AT	5
18400 / 17416	POS	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF A	AT	5
18580 / 17593	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF A	AT	5
18665 / 17677	DEF	AT last sample examined	DEF .	AT	5

GEOLOGIC 02-FEB-2011

PAGE:

545

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 242 Date of Summary: 23-FEB-2005 6000 First Sample Examined: Lease Number: G21788 Source of Paleo: OPERATOR 24395 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 23877 **API Well Number:** 608114043100 **Drilling Operator: NEXEN PETROLEUM USA INC Rkb Elevation:** 93 **Sample Range:** 6000 - 24393 2845 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Crested Butte Prospect, consultant-integrated foram and nanno report done by Morin Biostratigraphic Services and Ragan Biostrat, foram and

nannofossil species abundance and diversity table available, see report for details

MD / TVD	Paleo Top Description		Ec	<u>ozone</u>
6000 / 6000 DE	F AT first sample examined	POS	AT	5
6240 / 6240 DE	F AT	DEF	AT	5
6330 / 6330 DE	F AT Middle Pleistocene (Ionian) Gephyrocapsa parallela	DEF	AT	5
6660 / 6659 DE	F AT	DEF	AT	4
6810 / 6809 DE	F AT	DEF	AT	5
6840 / 6839 DE	F AT local marker foram increase	DEF	AT	5
7080 / 7079 DE	F AT	DEF	AT	4
7200 / 7199 DE	F AT local marker foram increase	DEF	AT	5
7410 / 7409 DE	F AT local marker foram increase	DEF	AT	5
7620 / 7619 DE	F AT	DEF	AT	4
7950 / 7949 DE	F AT local marker foram increase	DEF	AT	4
8730 / 8729 DE	F AT local marker foram increase	DEF	AT	5
8910 / 8909 PC	S AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
9360 / 9359 DE	F AT local marker foram increase	DEF	AT	5
9540 / 9539 DE	F AT	DEF	AT	4
10080 / 10079 DE	F AT out-of-place section	DEF	AT	4
10920 / 10919 PC	S AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	5
11100 / 11099 DE	F AT	DEF	AT	4
12270 / 12269 DE	F AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	5
12390 / 12389 DE	F AT	DEF	AT	4
12540 / 12539 DE	F AT	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 546

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 242 Date of Summary: 23-FEB-2005 First Sample Examined: 6000

Lease Number: G21788 Source of Paleo: OPERATOR Borehole TVD: 23877

Well Name:002Paleo Done By: OPERATORBorehole TVD:23877API Well Number:608114043100Drilling Operator: NEXEN PETROLEUM USA INCRkb Elevation:93

Paleo Report Num: 1 of 1 Sample Range: 6000 - 24393 Water Depth: 2845

Public Info Code: Y 19-OCT-2010 Ecozone Eq MMS:

MD / TVD		Paleo Top Description			<u>Ec</u>	ozone
12689 / 12688	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	= /	AT	5
12690 / 12689	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	= /	AT	5
12890 / 12889	DEF	AT	DEF	= /	AT	4
13220 / 13219	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	= /	AT	5
13640 / 13639	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	= /	AT	5
14000 / 13999	DEF	AT local marker foram increase	DEF	= /	AT	5
14060 / 14059	DEF	AT	DEF	= /	AT	5
14180 / 14179	DEF	AT	DEF	= /	AT	4
14659 / 14658	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	= /	AT	5
14660 / 14659	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	= /	AT	5
14870 / 14869	DEF	AT local marker planktic foram increase	DEF	= /	AT	5
14930 / 14929	DEF	AT	DEF	= /	AT	4
15170 / 15169	DEF	AT	DEF	= /	AT	5
15290 / 15289	DEF	AT	DEF	= /	AT	4
15380 / 15379	DEF	AT	DEF	= /	AT	5
15409 / 15408	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	= /	AT	5
15410 / 15409	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	= /	AT	5
15470 / 15469	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	= /	AT	5
15500 / 15499	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	= /	AT	5
15620 / 15619	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	= /	AT	5
15740 / 15739	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	= /	AT	5
15950 / 15949	DEF	AT	DEF	= /	AT	4
16160 / 16159	DEF	AT	DEF	= /	AT	5
16190 / 16189	DEF	AT	DEF	= /	AT	4

GEOLOGIC 02-FEB-2011

547

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GC242Date of Summary:23-FEB-2005First Sample Examined:6000Lease Number:G21788Source of Paleo:OPERATORBorehole MD:24395Well Name:002Paleo Done By:OPERATORBorehole TVD:23877

Well Name:002Paleo Done By: OPERATORBorehole TVD:23877API Well Number:608114043100Drilling Operator: NEXEN PETROLEUM USA INCRkb Elevation:93

API Well Number: 608114043100 Drilling Operator: NEXEN PETROLEUM USA INC Rkb Elevation: 93

Paleo Report Num: 1 of 1 Sample Range: 6000 - 24393 Water Depth: 2845

Public Info Code: Y 19-OCT-2010 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
16370 / 16369	DEF	AT	DEF	AT	5
16400 / 16399	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
16489 / 16488	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT	5
16490 / 16489	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
16550 / 16549	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
16660 / 16659	DEF	AT	DEF	AT	4
16990 / 16988	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
17050 / 17048	DEF	AT local marker foram increase	DEF	AT	5
17260 / 17256	DEF	AT local marker foram increase	DEF	AT	5
17380 / 17374	DEF	AT local marker foram increase	DEF	AT	5
17410 / 17404	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5
17979 / 17943	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	5
17980 / 17944	DEF	IN Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	5
18220 / 18162	DEF	AT	DEF	AT	4
18640 / 18547	DEF	AT	DEF	AT	5
18700 / 18602	DEF	AT local marker foram increase	DEF	AT	5
18880 / 18768	DEF	AT	DEF	AT	4
19060 / 18933	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	5
19120 / 18988	DEF	AT	DEF	AT	4
19420 / 19264	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
20140 / 19924	DEF	AT local marker foram increase	DEF	AT	5
20410 / 20171	DEF	AT local marker foram increase	DEF	AT	5
20590 / 20336	POS	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	5
20710 / 20446	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 548

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 242Date of Summary: 23-FEB-2005First Sample Examined: 6000Lease Number: G21788Source of Paleo: OPERATORBorehole MD: 24395

Lease Number:G21788Source of Paleo:OPERATORBorehole MD:24395Well Name:002Paleo Done By:OPERATORBorehole TVD:23877

API Well Number: 608114043100 Drilling Operator: NEXEN PETROLEUM USA INC Rkb Elevation: 93

 Paleo Report Num:
 1 of 1
 Sample Range:
 6000 - 24393
 Water Depth:
 2845

 Public Info Code:
 Y 19-OCT-2010
 Ecozone Eq MMS:
 Paleo ID:
 001

MD / TVD		Paleo Top Description		<u>E</u>	cozone
20800 / 20530	DEF	AT	DEF	AT	4
21010 / 20724	DEF	AT local marker foram increase	DEF	AT	4
21040 / 20752	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
21190 / 20889	DEF	AT	DEF	AT	5
21370 / 21054	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
21490 / 21163	DEF	AT local marker foram increase	DEF	AT	5
21519 / 21190	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	5
21520 / 21191	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	5
21670 / 21329	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	5
21850 / 21493	DEF	AT local marker foram increase	DEF	ΑT	5
22000 / 21631	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	5
22090 / 21713	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
22480 / 22070	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	5
22690 / 22262	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
23169 / 22699	DEF	AT Upper Miocene (Tortonian) Discoaster deflandrei	DEF	AT	5
23170 / 22700	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
23230 / 22754	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
23289 / 22808	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
23290 / 22809	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
23380 / 22893	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT	5
23620 / 23120	DEF	AT local marker foram increase	DEF	AT	5
23859 / 23352	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	ΑT	5
23860 / 23353	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
24009 / 23499	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	5

GEOLOGIC

PAGE: 549

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 242 Date of Summary: 23-FEB-2005 First Sample Examined: 6000 Source of Paleo: OPERATOR Lease Number: G21788 **Borehole MD:** 24395 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 23877 **API Well Number:** 608114043100 **Drilling Operator: NEXEN PETROLEUM USA INC Rkb Elevation:** 93 Paleo Report Num: 1 of 1 **Sample Range:** 6000 - 24393 2845 Water Depth: Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 001

MD / TVD	Paleo Top Description		<b>Ecozone</b>
24010 / 23500	DEF AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT 5
24160 / 23647	DEF AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT 5
24190 / 23677	DEF AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT 5
24250 / 23736	POS AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT 5
24393 / 23875	DEF AT last sample examined	DEF	AT 5

GEOLOGIC 02-FEB-2011 PAGE: 550

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 252 5780 Date of Summary: 15-AUG-2007 First Sample Examined: Lease Number: G18361 Source of Paleo: OPERATOR 15860 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14911 Drilling Operator: ENI US OPERATING CO INC **API Well Number:** 608114048600 **Rkb Elevation:** 86 3156 Paleo Report Num: 1 of 1 **Sample Range:** 5780 - 15860 Water Depth: Public Info Code: Y 19-AUG-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
5780 / 5780	DEF	AT first sample examined	DEF	AT	5
7310 / 7310	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
7790 / 7790	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	5
8240 / 8240	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT	5
9080 / 9080	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
10440 / 10429	DEF	AT local marker benthic foram increase	DEF	AT	5
10560 / 10543	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	5
10620 / 10599	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT	5
10680 / 10655	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT	5
12000 / 11761	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	5
12420 / 12104	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
13200 / 12739	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	5
13260 / 12788	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	5
13290 / 12813	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
13559 / 13032	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT	5
13560 / 13033	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
13830 / 13253	DEF	AT reworked material	DEF	AT	5
14009 / 13399	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
14010 / 13400	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	5
14160 / 13522	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
14760 / 14011	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
14790 / 14036	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	5

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 551

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 252 Date of Summary: 15-AUG-2007 First Sample Examined: 5780 Lease Number: G18361 Source of Paleo: OPERATOR **Borehole MD:** 15860 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14911 Drilling Operator: ENI US OPERATING CO INC **API Well Number:** 608114048600 **Rkb Elevation:** 86 3156

Paleo Report Num: 1 of 1 **Sample Range:** 5780 - 15860 Water Depth:

Public Info Code: Y 19-AUG-2008 **Ecozone Eq MMS:** Y

MD/TVD	Paleo Top Description	<u>Ecozone</u>
15570 / 14673	POS AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT 5
15860 / 14911	DEF AT last sample examined	DEF AT 5

GEOLOGIC

552

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 254 Date of Summary: 06-SEP-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G07049 15500 **Borehole MD:** Well Name: 005 Paleo Done By: OPERATOR **Borehole TVD:** 13409 **Drilling Operator:** BRITISH-BORNEO USA INC **API Well Number:** 608115009001 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 3234 Water Depth: Public Info Code: Y 04-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD/TVD		Paleo Top Description		<u>Ecozone</u>
13589 / 11665	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
14168 / 12216	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
15434 / 13352	DEF	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 553

Paleo ID:

0

13435

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 254 Date of Summary: 19-DEC-2001 First Sample Examined:

Lease Number: G08010 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: 004 Paleo Done By: OPERATOR Borehole TVD: 12511

API Well Number: 608115008303 Drilling Operator: BRITISH-BORNEO USA INC Rkb Elevation: 73

Paleo Report Num:1of1Sample Range:0 -0Water Depth:3225

Remark: Calcareous nannofossil report

Public Info Code: Y 22-JAN-2011

MD / TVD Paleo Top Description Ecozone

12750 / 11974 DEF IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei DEF AT

**Ecozone Eq MMS:** 

GEOLOGIC 02-FEB-2011 PAGE: 554

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 297 5087 Date of Summary: 07-NOV-2000 First Sample Examined: Lease Number: G08876 Source of Paleo: OPERATOR 16750 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16743 **Drilling Operator:** BRITISH-BORNEO USA INC **API Well Number:** 608114027900 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 5087 - 16750 3140 Water Depth: Public Info Code: Y 03-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

<u>MD / TVD</u>		Paleo Top Description		<u>!</u>	<u>Ecozone</u>
5087 / 5087	DEF	AT first sample examined	DEF	AT	4
7890 / 7890	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
8220 / 8220	DEF	AT	DEF	AT	4
9090 / 9090	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	5
11429 / 11426	DEF	AT local marker planktic foram increase	DEF	ΑT	5
11430 / 11427	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
12150 / 12147	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
12510 / 12507	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	ΑT	5
13980 / 13976	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	ΑT	5
14009 / 14005	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
14010 / 14006	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
14069 / 14065	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
14070 / 14066	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
14160 / 14156	DEF	AT	DEF	ΑT	5
14580 / 14576	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	ΑT	5
15090 / 15086	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
15180 / 15175	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	ΑT	5
15209 / 15204	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	5
15210 / 15205	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
15270 / 15265	DEF	AT local marker foram decrease	DEF	ΑT	5
16740 / 16734	DEF	AT	DEF	ΑT	6
16750 / 16744	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011 PAGE: 555

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 297 5087 Date of Summary: 07-NOV-2000 First Sample Examined: Lease Number: G08876 Source of Paleo: OPERATOR 16750 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16743 **Drilling Operator:** BRITISH-BORNEO USA INC **API Well Number:** 608114027900 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 5087 - 16750 3140 Water Depth: Public Info Code: Y 03-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5087 / 5087	DEF	AT first sample examined	DEF	AT
7830 / 7830	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
10890 / 10888	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
11430 / 11427	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus (increase)	DEF	AT
11580 / 11577	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
12180 / 12177	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
12480 / 12477	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12540 / 12537	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
13530 / 13527	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
13980 / 13976	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
14010 / 14006	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
14550 / 14546	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
15030 / 15026	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
15090 / 15086	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
15210 / 15205	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
16110 / 16104	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
16750 / 16744	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

556

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 298 First Sample Examined: Date of Summary: 09-MAY-2000 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G08010 **Borehole MD:** 14600 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 13676 **Drilling Operator:** BRITISH-BORNEO USA INC **API Well Number:** 608114025103 **Rkb Elevation:** 73 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 3310 Water Depth: Public Info Code: Y 08-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD / TVD		Paleo Top Description		<u>Ecozone</u>
12698 / 11940	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
13466 / 12704	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
14312 / 13459	DEF	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT

**GEOLOGIC** 02-FEB-2011 557

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 299 Date of Summary: 27-OCT-2005 11460 First Sample Examined: Lease Number: G15571 Source of Paleo: OPERATOR 16222 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16165 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608114045002 **Rkb Elevation:** 86 **Sample Range:** 11460 - 16210 Paleo Report Num: 1 of 1 3452 Water Depth: Public Info Code: Y 01-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
11460 / 11457	DEF	AT first sample examined	DEF	IN	5
11950 / 11934	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	5
12640 / 12597	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	IN	5
13119 / 13065	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	IN	5
13120 / 13066	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
14320 / 14265	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	IN	5
14710 / 14655	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	5
15939 / 15884	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	5
15940 / 15885	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
15970 / 15915	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
16060 / 16005	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
16150 / 16095	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	IN	5
16180 / 16125	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	IN	5
16210 / 16155	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011

558

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 299 First Sample Examined: 15831 Date of Summary: 15-NOV-2006 Lease Number: G15571 Source of Paleo: OPERATOR **Borehole MD:** 16100 Well Name: SS001 Paleo Done By: OPERATOR **Borehole TVD:** 15271 Drilling Operator: PIONEER NATURAL RESOURCES USA INC **API Well Number:** 608114045004 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 15831 - 15911 3456 Water Depth: Public Info Code: Y 01-SEP-2009 Ecozone Eq MMS: Y Paleo ID: 001

Remark: Company-integrated foram and nanno report based on sidewall cores

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
15831 / 15016	DEF	AT first sample examined	DEF	AT	3
15832 / 15017	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT	3
15842 / 15026	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
15843 / 15027	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
15850 / 15034	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	IN	5
15891 / 15073	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	IN	5
15899 / 15080	POS	AT transported outer shelf facies	POS	AT	5
15900 / 15081	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	POS	AT	5
15910 / 15091	POS	AT transported outer shelf facies	POS	AT	5
15911 / 15092	DEF	AT last sample examined	POS	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 559

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 313 4600 Date of Summary: 16-NOV-2007 First Sample Examined: Lease Number: G18364 Source of Paleo: OPERATOR 10000 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10000 **API Well Number: 608114049800** Drilling Operator: REPSOL E&P USA INC **Rkb Elevation:** 86 **Sample Range:** 4600 - 10000 2747 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 19-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD	Paleo Top Description		Ec	<u>ozone</u>
4600 / 4600	DEF AT first sample examined	DEF	AT	5
4601 / 4601	DEF IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
5470 / 5470	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT	5
5740 / 5740	POS IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
6160 / 6160	DEF AT	DEF	IN	5
6250 / 6250	DEF AT sample gap top	POS	IN	5
6310 / 6310	DEF AT sample gap bottom	DEF	AT	5
6760 / 6760	DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
9400 / 9400	POS AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	5
10000 / 10000	DEF AT last sample examined	DEF	AT	5

GEOLOGIC

560

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 338 5960 Date of Summary: 02-MAR-2001 First Sample Examined: Lease Number: G21790 Source of Paleo: OPERATOR 16036 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15723 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608115013400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 5960 - 16033 3330 Water Depth: Public Info Code: Y 15-JAN-2011 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	cozone
5960 / 5960	DEF	AT first sample examined	DEF	AT	4
6740 / 6739	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
7760 / 7759	DEF	AT	DEF	AT	5
7910 / 7909	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
12780 / 12682	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
14700 / 14476	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
15300 / 15035	DEF	AT anhydrite	DEF	AT	5
15301 / 15036	DEF	AT domal material	DEF	AT	5
16033 / 15720	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE:

561

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 338 5960 Date of Summary: 02-MAR-2001 First Sample Examined: Lease Number: G21790 Source of Paleo: OPERATOR 16036 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15723 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608115013400 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 5960 - 16033 3330 Water Depth: Public Info Code: Y 15-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description			<u>Ecozone</u>
5960 / 5960	DEF AT first sample examined		DEF	AT
7700 / 7699	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania	a lacunosa "B"	DEF	AT
11130 / 11128	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania	a ovata	DEF	AT
12840 / 12738	DEF AT Lower Pleistocene (Calabrian) Pseudoemilia	ınia lacunosa "C" (acme)	DEF	AT
13080 / 12961	DEF AT Lower Pleistocene (Calabrian) Gephyrocaps	a caribbeanica (large)	DEF	AT
13950 / 13770	DEF AT Lower Pleistocene (Calabrian) Helicosphaei	a sellii	DEF	AT
14640 / 14420	DEF AT Lower Pleistocene (Calabrian) Calcidiscus r	nacintyrei	DEF	AT
15060 / 14812	DEF AT Upper Pliocene (Gelasian) Discoaster brouv	veri	DEF	AT
15330 / 15063	DEF AT salt		DEF	AT
16033 / 15720	DEF AT last sample examined		DEF	AT

GEOLOGIC 02-FEB-2011

562

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 Date of Summary: 26-MAR-2001 6990 First Sample Examined: Lease Number: G21794 Source of Paleo: OPERATOR 13925 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 13925 **API Well Number: 608114029400 Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 6990 - 13020 3594 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
6990 / 6990	DEF	AT first sample examined	DEF	AT	5
7470 / 7470	DEF	AT	DEF	AT	4
8910 / 8910	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	4
9000 / 9000	DEF	AT	DEF	ΑT	5
9210 / 9210	DEF	AT	DEF	ΑT	4
9570 / 9569	DEF	AT local marker planktic foram increase	DEF	ΑT	4
9660 / 9659	DEF	AT reworked material	DEF	AT	4
9900 / 9899	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	3
9930 / 9929	DEF	AT	DEF	ΑT	4
11280 / 11279	POS	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	ΑT	4
11310 / 11309	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	ΑT	5
11340 / 11339	DEF	AT	DEF	ΑT	4
11850 / 11849	DEF	AT gypsum	DEF	AT	4
12120 / 12119	DEF	AT	DEF	AT	4
12810 / 12808	DEF	AT oxidized shale	DEF	ΑT	4
12840 / 12838	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
12900 / 12898	DEF	AT	DEF	ΑT	4
13019 / 13017	DEF	AT reworked material	POS	ΑT	4
13020 / 13018	DEF	AT last sample examined	POS	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 563

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 6990 Date of Summary: 01-JUL-2001 First Sample Examined: Lease Number: G21794 Source of Paleo: OPERATOR 13925 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 13925 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114029400 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 6990 - 13925 3594 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6990 / 6990	DEF	AT first sample examined	DEF	AT
6991 / 6991	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
9780 / 9779	DEF	IN Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
11280 / 11279	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11370 / 11369	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
12899 / 12897	POS	AT Upper Cretaceous Maastrichtian Stage	DEF	AT
12900 / 12898	DEF	AT reworked material	DEF	AT
13020 / 13018	POS	AT Upper Cretaceous Campanian Stage	DEF	AT
13740 / 13737	DEF	AT sample gap top	DEF	AT
13924 / 13921	DEF	AT sample gap bottom	DEF	AT
13925 / 13922	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 564

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 18390 Date of Summary: 21-MAY-2001 First Sample Examined: Lease Number: G21794 Source of Paleo: OPERATOR 20508 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20502 **API Well Number:** 608114029401 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 18390 - 20500 3594 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	ozone
18390 / 18384	DEF	AT first sample examined	POS	AT	5
18391 / 18385	DEF	IN salt	POS	AT	5
18660 / 18654	DEF	AT sample gap top	POS	AT	5
18750 / 18744	DEF	AT sample gap bottom	POS	AT	5
18940 / 18934	DEF	AT out-of-place section	DEF	AT	5
19350 / 19344	DEF	AT transported shelf fauna	DEF	AT	5
19409 / 19403	DEF	AT transported outer shelf facies	POS	AT	5
19410 / 19404	POS	IN Upper Miocene (Messinian) Globorotalia margaritae primitiva	POS	AT	5
19470 / 19464	DEF	AT transported shelf fauna	POS	AT	5
19560 / 19554	DEF	AT transported outer shelf facies	POS	AT	4
19650 / 19644	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
19690 / 19684	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	4
20070 / 20064	DEF	AT local marker planktic foram increase	DEF	AT	4
20160 / 20154	DEF	AT local marker planktic foram increase	DEF	AT	4
20340 / 20334	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
20490 / 20484	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE:

565

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 18390 Date of Summary: 01-JUL-2001 First Sample Examined: Lease Number: G21794 Source of Paleo: OPERATOR 20508 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 20502 **API Well Number:** 608114029401 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 18390 - 20500 3594 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, most of the samples are described as mixed assemblages of Miocene to Late Cretaceous age, nannospecies

abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
18940 / 18934	DEF AT out-of-place section	DEF AT
18970 / 18964	DEF AT out-of-place section	DEF AT
19020 / 19014	DEF AT out-of-place section	DEF AT
19140 / 19134	DEF AT out-of-place section	DEF AT
19260 / 19254	DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF AT
19319 / 19313	DEF AT out-of-place section	DEF AT
19350 / 19344	DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF AT
19410 / 19404	POS IN Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF AT
19440 / 19434	DEF AT out-of-place section	DEF AT
19710 / 19704	DEF AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF AT
19740 / 19734	DEF IN Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 566

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 Date of Summary: 17-JUL-2001 19039 First Sample Examined: Lease Number: G21794 Source of Paleo: OPERATOR 26677 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 25999 **API Well Number:** 608114029402 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 19039 - 26677 3594 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
19039 / 18916	DEF	AT first sample examined	DEF	AT	4
19070 / 18947	DEF	AT transported shelf fauna	POS	AT	4
19085 / 18962	DEF	AT	DEF	AT	4
19100 / 18977	DEF	AT transported outer shelf facies	POS	AT	4
19115 / 18991	DEF	AT	DEF	AT	4
19220 / 19095	POS	AT local marker planktic foram increase	DEF	AT	4
19340 / 19213	POS	IN Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
19580 / 19451	DEF	AT transported shelf fauna	POS	AT	4
19610 / 19481	DEF	AT	DEF	AT	4
19670 / 19541	DEF	AT	DEF	IN	3
19700 / 19570	DEF	AT	DEF	AT	4
19730 / 19600	DEF	AT	DEF	IN	3
19760 / 19630	DEF	AT	DEF	AT	4
19820 / 19690	DEF	AT transported shelf fauna	POS	AT	4
19850 / 19719	DEF	AT	DEF	AT	4
20030 / 19898	POS	AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT	4
20120 / 19987	DEF	AT reworked material	DEF	AT	4
20240 / 20106	DEF	AT local marker planktic foram increase	DEF	AT	4
20360 / 20224	DEF	AT transported shelf fauna	POS	AT	4
20450 / 20313	DEF	AT	DEF	AT	4
20510 / 20372	DEF	AT Cyclammina sp. (local marker)	DEF	AT	4
20540 / 20402	DEF	AT	DEF	IN	3

GEOLOGIC 02-FEB-2011 PAGE: 567

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 Date of Summary: 17-JUL-2001 First Sample Examined: 19039 Lease Number: G21794 Source of Paleo: OPERATOR 26677 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 25999 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114029402 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 19039 - 26677 3594 Water Depth:

Public Info Code: Y 19-AUG-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
20600 / 20461	DEF	AT	DEF	ΑT	4
20690 / 20550	DEF	AT transported shelf fauna	POS	AT	4
20720 / 20579	DEF	AT	DEF	AT	4
20810 / 20668	DEF	AT transported shelf fauna	POS	ΑT	4
20840 / 20697	DEF	AT	DEF	ΑT	4
20958 / 20813	DEF	AT	DEF	IN	3
20990 / 20845	DEF	AT	DEF	ΑT	4
21140 / 20992	DEF	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	ΑT	4
21350 / 21198	DEF	AT Bathysiphon fauna	DEF	ΑT	4
21380 / 21227	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	ΑT	4
21500 / 21343	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
21590 / 21429	DEF	AT	DEF	ΑT	5
21600 / 21438	DEF	AT	DEF	ΑT	4
21650 / 21486	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
22970 / 22710	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
23090 / 22819	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	4
23180 / 22900	DEF	AT local marker foram decrease	DEF	ΑT	4
23450 / 23143	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	4
23660 / 23330	DEF	AT transported shelf fauna	POS	ΑT	4
24170 / 23778	DEF	AT transported outer shelf facies	POS	ΑT	4
24230 / 23831	DEF	AT local marker foram increase	POS	ΑT	4
24260 / 23858	DEF	AT	DEF	ΑT	4
24290 / 23884	DEF	AT	DEF	ΑT	5
24490 / 24061	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4

GEOLOGIC

02-FEB-2011 PAGE: 568

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 Date of Summary: 17-JUL-2001 First Sample Examined: 19039 Lease Number: G21794 Source of Paleo: OPERATOR 26677 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 25999 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114029402 **Rkb Elevation:** 85 **Sample Range:** 19039 - 26677 3594 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Ecc	<u>ozone</u>
24770 / 24308	DEF	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	AT	5
24830 / 24361	DEF	AT	DEF	AT	4
24920 / 24441	DEF	AT Bathysiphon fauna	DEF	AT	4
25490 / 24944	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
25820 / 25236	POS	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	4
26480 / 25823	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
26667 / 25990	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 569

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 389 Date of Summary: 01-OCT-2001 19070 First Sample Examined: Lease Number: G21794 Source of Paleo: OPERATOR 26677 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 25999 **API Well Number:** 608114029402 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 19070 - 26677 3594 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
19070 / 18947	DEF	AT first sample examined	DEF	AT
19250 / 19125	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
20420 / 20283	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
20709 / 20568	DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
22670 / 22436	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
23030 / 22765	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
23600 / 23276	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
23620 / 23294	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
25490 / 24944	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
25820 / 25236	POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
26390 / 25743	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
26677 / 25999	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 570

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 434 Date of Summary: 21-DEC-2005 First Sample Examined: 24520 Lease Number: G21207 Source of Paleo: OPERATOR 31196 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 30362 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608114044600 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 24520 - 31196 3448 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		<u>F</u>	<u>Ecozone</u>
24520 / 24520	DEF	AT first sample examined	POS	AT	4
25120 / 25120	DEF	AT out-of-place section	DEF	AT	4
25179 / 25179	DEF	AT turbid water facies	POS	ΑT	4
25180 / 25180	DEF	AT Bathysiphon fauna	POS	ΑT	4
25209 / 25209	DEF	AT turbid water facies	POS	ΑT	4
25210 / 25210	DEF	AT Bathysiphon fauna	POS	ΑT	4
25300 / 25300	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	POS	ΑT	4
25390 / 25390	DEF	AT turbid water facies	POS	ΑT	4
25420 / 25420	DEF	AT Bathysiphon fauna	POS	ΑT	4
25780 / 25779	DEF	AT turbid water facies	POS	ΑT	4
25960 / 25958	DEF	AT local marker benthic foram increase	DEF	IN	3
26169 / 26163	DEF	AT turbid water facies	POS	IN	3
26170 / 26164	DEF	AT Arenaceous fauna (local marker)	POS	IN	3
26199 / 26193	DEF	AT turbid water facies	DEF	ΑT	4
26200 / 26193	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	4
26230 / 26223	DEF	AT local marker benthic foram increase	DEF	ΑT	4
26320 / 26309	DEF	AT turbid water facies	DEF	ΑT	4
26470 / 26452	DEF	AT Bathysiphon fauna	DEF	ΑT	4
26620 / 26593	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
27130 / 27045	DEF	IN Upper Miocene (Tortonian) Cibicides crebbsi	DEF	ΑT	4
27160 / 27070	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	4
27190 / 27095	DEF	AT transported shelf fauna	DEF	ΑT	4

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 571

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 434 Date of Summary: 21-DEC-2005 24520 First Sample Examined: Lease Number: G21207 Source of Paleo: OPERATOR 31196 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 30362 **API Well Number:** 608114044600 **Drilling Operator: SHELL OFFSHORE INC Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 24520 - 31196 3448 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

WID / I VD		Paleo Top Description		ECOZ	zone
27490 / 27341	DEF	AT turbid water facies	DEF	AT	4
27940 / 27708	DEF	AT transported shelf fauna	DEF	AT	4
28030 / 27781	DEF	AT turbid water facies	DEF	AT	4
28210 / 27928	DEF	AT	DEF	IN	3
28300 / 28001	DEF	AT	DEF	AT	4
28359 / 28049	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
28360 / 28050	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	4
28390 / 28074	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	4
28840 / 28441	DEF	AT turbid water facies	POS	AT	4
28870 / 28465	DEF	AT Arenaceous fauna (local marker)	POS	AT	4
28960 / 28539	DEF	AT	DEF	AT	4
28990 / 28563	DEF	AT turbid water facies	POS	AT	4
29020 / 28588	DEF	AT Arenaceous fauna (local marker)	POS	AT	4
29050 / 28612	DEF	AT	DEF	AT	4
29140 / 28686	DEF	AT transported shelf fauna	POS	AT	4
29170 / 28710	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	4
29200 / 28734	DEF	AT	DEF	AT	5
29230 / 28759	DEF	AT	DEF	AT	4
29350 / 28857	DEF	IN Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
29410 / 28906	DEF	AT	DEF	AT	4
29500 / 28979	DEF	AT Middle Miocene (Langhian) Globorotalia siakensis (coiling change left/right)	DEF	AT	4
29530 / 29004	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	5
29620 / 29077	DEF	AT	DEF	AT	4
29650 / 29101	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	4

This report contains public paleo reports only for the time period stated

Paleo Top Description

GEOLOGIC 02-FEB-2011 PAGE: 572

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 434 Date of Summary: 21-DEC-2005 First Sample Examined: 24520 Lease Number: G21207 Source of Paleo: OPERATOR **Borehole MD:** 31196 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 30362 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608114044600 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 24520 - 31196 3448 Water Depth:

Public Info Code: Y 30-JUN-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>F</u>	<u>Ecozone</u>
29710 / 29150	DEF	AT local marker planktic foram increase	DEF	AT	4
30100 / 29468	DEF	AT	DEF	AT	5
30130 / 29493	DEF	AT turbid water facies	POS	ΑT	5
30190 / 29542	DEF	AT	DEF	ΑT	4
30249 / 29590	DEF	AT Lower Miocene (Burdigalian) Catapsydrax stainforthi	DEF	AT	4
30250 / 29591	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	ΑT	4
30580 / 29860	POS	AT Lower Miocene (Burdigalian) Siphogenerina fredsmithi	DEF	ΑT	4
30610 / 29884	DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	ΑT	4
30730 / 29982	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT	4
30820 / 30056	DEF	AT Lower Miocene (Aquitanian) Globigerinoides primordius	DEF	AT	4
30930 / 30145	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	4
30968 / 30176	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	4
30969 / 30177	DEF	AT Upper Oligocene (Chattian) Globorotalia opima nana	DEF	AT	4
30970 / 30178	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	ΑT	4
31030 / 30227	DEF	AT Lower Oligocene (Rupelian) Textularia mississippiensis seligi	DEF	ΑT	4
31150 / 30324	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
31196 / 30362	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 573

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Public Info Code: Y 30-JUN-2009

Area Block: GC 434 First Sample Examined: 11200 Date of Summary: 12-MAR-2006 Lease Number: G21207 Source of Paleo: OPERATOR **Borehole MD:** 31196 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 30362 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608114044600 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 11200 - 31196 3448 Water Depth:

Ecozone Eq MMS: N

Remark: Calcareous nannofossil report, paleo done by Theresa M Dunn

MD / TVD		Paleo Top Description		<u>Ecozone</u>
11230 / 11230	DEF	AT first sample examined	DEF	AT
11231 / 11231	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11830 / 11830	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11890 / 11890	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11920 /11920	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
11950 / 11950	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11980 /11980	DEF	AT Lower Pliocene (Zanclian) Discoaster challengeri	DEF	AT
12040 / 12040	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12160 / 12160	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
12190 / 12190	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
12280 / 12280	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
12310 / 12310	DEF	AT sample gap top	DEF	AT
24820 / 24820	DEF	AT sample gap bottom	DEF	AT
25570 / 25570	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
26770 / 26731	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
27130 / 27045	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
27160 / 27070	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
27580 / 27414	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
27610 / 27438	DEF	AT reworked material	DEF	AT
28959 / 28538	POS	AT reworked material	DEF	AT
28960 / 28539	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
29500 / 28979	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT

**GEOLOGIC** 02-FEB-2011

574

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 434 Date of Summary: 12-MAR-2006 First Sample Examined: 11200 Source of Paleo: OPERATOR Lease Number: G21207 **Borehole MD:** 31196 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 30362 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608114044600 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 11200 - 31196 3448 Water Depth: Paleo ID: 002

Public Info Code: Y 30-JUN-2009 Ecozone Eq MMS: N

MD / TVD		Paleo Top Description		<b>Ecozone</b>
30280 / 29615	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
30490 / 29786	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
30550 / 29835	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
30790 / 30031	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
30940 / 30153	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT
31196 / 30362	DEF	AT last sample examined	DEF	AT

**GEOLOGIC** 02-FEB-2011 PAGE: 575

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 434 25960 Date of Summary: 02-MAR-2006 First Sample Examined: Lease Number: G21212 Source of Paleo: OPERATOR 32475 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 32473 **API Well Number:** 608114044601 **Drilling Operator: SHELL OFFSHORE INC Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 25960 - 32475 3448 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Paleo done by Ragan Biostrat, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	cozone
25960 / 25959	DEF	AT first sample examined	DEF	AT	4
25990 / 25989	DEF	AT	DEF	AT	5
26050 / 26048	DEF	AT	DEF	AT	4
26260 / 26257	DEF	AT	DEF	AT	5
26290 / 26287	DEF	AT	DEF	AT	4
26470 / 26467	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
26500 / 26497	DEF	AT	DEF	ΑT	5
26650 / 26647	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	ΑT	5
26680 / 26677	DEF	AT	DEF	AT	4
26950 / 26947	DEF	AT	DEF	ΑT	5
26980 / 26977	DEF	AT	DEF	ΑT	4
27160 / 27157	DEF	AT	DEF	ΑT	5
27220 / 27217	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
27310 / 27307	DEF	AT local marker foram increase	DEF	ΑT	5
27340 / 27337	DEF	AT	DEF	ΑT	4
27520 / 27517	DEF	AT	DEF	ΑT	5
27640 / 27637	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
27820 / 27817	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
28030 / 28027	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
28120 / 28117	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	ΑT	5
28420 / 28417	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
28660 / 28657	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 576

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GC434Date of Summary:02-MAR-2006First Sample Examined:25960Lease Number:G21212Source of Paleo:OPERATORBorehole MD:32475Well Name:001Paleo Done By:OPERATORBorehole TVD:32473

 API Well Number:
 608114044601
 Drilling Operator:
 SHELL OFFSHORE INC
 Rkb Elevation:
 75

 Paleo Report Num:
 1 of 2
 Sample Range:
 25960 - 32475
 Water Depth:
 3448

Public Info Code: Y 30-JUN-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
28690 / 28687	DEF	AT	DEF	AT	4
28900 / 28897	DEF	AT	DEF	AT	5
28930 / 28927	DEF	AT local marker foram increase	DEF	AT	5
29050 / 29047	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
29200 / 29197	DEF	AT local marker foram increase	DEF	AT	5
29560 / 29557	DEF	AT local marker foram increase	DEF	AT	5
29980 / 29977	DEF	AT	POS	AT	5
30040 / 30037	DEF	AT	DEF	AT	4
30130 / 30127	DEF	AT	DEF	AT	5
30160 / 30157	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
30400 / 30397	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	5
30490 / 30487	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	5
30910 / 30907	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	5
31240 / 31237	DEF	AT local marker foram increase	DEF	AT	5
31330 / 31327	DEF	AT local marker foram increase	DEF	AT	5
31450 / 31447	DEF	AT transported inner shelf facies	DEF	AT	5
31600 / 31597	POS	AT Lower Miocene (Burdigalian) Catapsydrax stainforthi	DEF	AT	5
31690 / 31687	DEF	AT local marker foram increase	DEF	AT	5
32050 / 32047	DEF	AT local marker foram increase	DEF	AT	5
32080 / 32077	DEF	AT Lower Miocene (Burdigalian) Catapsydrax stainforthi	DEF	AT	5
32475 / 32472	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 577

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 434 Date of Summary: 01-APR-2006 25800 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G21212 **Borehole MD:** 32475 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 32473 **Drilling Operator: SHELL OFFSHORE INC API Well Number:** 608114044601 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 25800 - 32475 3448 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
25800 / 25799	DEF	AT first sample examined	DEF	AT
25801 / 25800	DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
25900 / 25899	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
25990 / 25989	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
26980 / 26977	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
27910 / 27907	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
29920 / 29917	DEF	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
30070 / 30067	POS	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
30190 / 30187	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
30910 / 30907	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
32050 / 32047	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
32475 / 32472	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 578

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 473 Date of Summary: 16-MAR-2000 First Sample Examined: 6000 Lease Number: G05922 Source of Paleo: OPERATOR 12250 **Borehole MD:** Well Name: 002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 12219 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114027300 **Rkb Elevation:** 82 **Sample Range:** 6000 - 12250 Paleo Report Num: 1 of 3 3833 Water Depth: Public Info Code: Y 18-APR-2010 Ecozone Eq MMS: Y Paleo ID: 001

Remark: King Kong Prospect, 9660=possible warm and cool fauna

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
6000 / 6000	DEF	AT first sample examined	POS	IN	2
6150 / 6150	DEF	AT faunal change (no faunal increase)	DEF	IN	2
6210 / 6210	DEF	AT faunal change (no faunal increase)	DEF	IN	3
6360 / 6360	DEF	AT faunal change (no faunal increase)	DEF	AT	4
6630 / 6630	DEF	AT faunal change (no faunal increase)	DEF	IN	3
6660 / 6660	DEF	AT faunal change (no faunal increase)	DEF	AT	4
6900 / 6900	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
7080 / 7080	DEF	AT local marker foram increase	DEF	AT	4
7230 / 7230	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7290 / 7290	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
7380 / 7380	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7650 / 7650	DEF	AT local marker foram increase	DEF	AT	5
7800 / 7800	DEF	AT faunal change (no faunal increase)	DEF	AT	4
8070 / 8070	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
8130 / 8130	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
8280 / 8280	DEF	AT faunal change (no faunal increase)	DEF	AT	5
8370 / 8370	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9090 / 9090	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9630 / 9629	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
9660 / 9659	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9900 / 9896	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10560 / 10543	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

579

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 473 6000 Date of Summary: 16-MAR-2000 First Sample Examined: Lease Number: G05922 Source of Paleo: OPERATOR 12250 **Borehole MD:** Well Name: 002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 12219 **API Well Number: 608114027300 Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 82 Paleo Report Num: 1 of 3 **Sample Range:** 6000 - 12250 Water Depth: 3833 Public Info Code: Y 18-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	zone
10650 / 10631	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10770 / 10749	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10830 / 10808	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10860 / 10837	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10890 / 10866	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10950 / 10925	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11070 / 11043	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11220 / 11190	POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
11400 / 11369	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11520 / 11489	POS	AT local marker foram increase	DEF	AT	4
11640 / 11609	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
11820 / 11789	DEF	IN Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
12120 / 12089	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	4
12150 / 12119	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
12180 / 12149	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
12210 / 12179	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
12250 / 12219	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

580

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 473 Date of Summary: 01-JUL-2000 First Sample Examined: 6000 Lease Number: G05922 Source of Paleo: OPERATOR **Borehole MD:** 12250 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 12219 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114027300 **Rkb Elevation:** 82 Paleo Report Num: 2 of 3 **Sample Range:** 6000 - 12250 3833 Water Depth: Public Info Code: Y 18-APR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
6000 / 6000	DEF	AT first sample examined	DEF	AT
6600 / 6600	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
7290 / 7290	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
9660 / 9659	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
10860 / 10837	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10950 / 10925	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11490 / 11459	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11760 / 11729	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11790 / 11759	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11820 / 11789	POS	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
11970 / 11939	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12120 / 12089	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12150 / 12119	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12240 / 12209	POS	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
12250 / 12219	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 581

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 473 Date of Summary: 19-JUL-2000 First Sample Examined: 6000 Lease Number: G05922 Source of Paleo: OPERATOR **Borehole MD:** 12250 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 12219 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608114027300 **Rkb Elevation:** 82 Paleo Report Num: 3 of 3 **Sample Range:** 6000 - 12250 3833 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 18-APR-2010 Paleo ID: 003

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ecc	zone
6000 / 6000	DEF	AT first sample examined	POS	AT	4
6600 / 6600	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	4
7290 / 7290	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	IN	4
8130 / 8130	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
9660 / 9659	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	IN	4
10860 / 10837	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	4
10950 / 10925	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	4
11490 / 11459	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
11520 / 11489	POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
11640 / 11609	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
11760 / 11729	DEF	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	4
11790 / 11759	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	4
11820 / 11789	DEF	IN Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	4
11821 / 11790	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	4
11970 / 11939	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	4
12120 / 12089	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	4
12149 / 12118	POS	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	4
12150 / 12119	POS	IN Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	IN	4
12180 / 12149	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	4
12250 / 12219	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 582

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 474 6780 Date of Summary: 14-MAR-2002 First Sample Examined: Lease Number: G21798 Source of Paleo: OPERATOR 13967 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13279 **API Well Number: 608114033400 Drilling Operator:** ANADARKO PETROLEUM CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 6780 - 13950 4136 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

EF	AT
EF	AT
	DEF

GEOLOGIC 02-FEB-2011

583

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 474 6780 Date of Summary: 15-MAR-2002 First Sample Examined: Lease Number: G21798 Source of Paleo: OPERATOR 13967 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13279 **API Well Number: 608114033400 Drilling Operator:** ANADARKO PETROLEUM CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 6780 - 13950 4136 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	ozone
6780 / 6780	DEF	AT first sample examined	DEF	AT	4
6900 / 6900	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
7230 / 7230	DEF	AT	DEF	AT	4
9140 / 9122	DEF	AT	DEF	AT	5
9300 / 9269	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
9570 / 9504	DEF	AT	DEF	AT	4
10410 / 10203	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
10640 / 10394	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
10740 / 10476	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
10770 / 10500	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
11160 / 10821	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
11280 / 10922	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
11640 / 11230	DEF	AT local marker planktic foram increase	DEF	AT	5
12328 / 11830	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
12329 / 11831	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
12330 / 11832	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
12360 / 11858	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
12390 / 11884	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	IN	5
12420 / 11911	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
12720 / 12174	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
12839 / 12280	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
12840 / 12281	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5

GEOLOGIC

584

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 474 Date of Summary: 15-MAR-2002 First Sample Examined: 6780 Lease Number: G21798 Source of Paleo: OPERATOR **Borehole MD:** 13967 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13279 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114033400 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 6780 - 13950 4136 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

	MD / TVD		Paleo Top Description		<u>Ecoz</u>	<u>:one</u>
13	3049 / 12465	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF II	٧	5
13	3050 / 12466	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF II	1	5
13	3380 / 12758	DEF	AT	DEF A	T	5
13	3410 / 12785	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF A	T	5
13	3950 / 13265	DEF	AT last sample examined	DEF A	T	5

GEOLOGIC 02-FEB-2011

PAGE:

585

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 485 14990 Date of Summary: 18-SEP-2002 First Sample Examined: Lease Number: G20070 Source of Paleo: OPERATOR 24942 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24929 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608114034300 **Rkb Elevation:** 82 **Sample Range:** 14990 - 24942 2796 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 17150=undifferentiated Neogene fauna with significant background Eocene fauna persisting to 17510, foram species abundance and diversity chart

available, see report for details

MD / TVD		Paleo Top Description		<u>Ecc</u>	<u>ozone</u>
14990 / 14984	DEF	AT first sample examined	POS	AT	5
14991 / 14985	DEF	IN salt	POS	AT	5
17150 / 17144	DEF	AT base of salt	DEF	AT	5
17300 / 17294	DEF	AT	POS	AT	6
17930 / 17924	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
18050 / 18044	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
19970 / 19964	DEF	AT	DEF	IN	5
21620 / 21614	DEF	AT	DEF	AT	5
22580 / 22573	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
23240 / 23232	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
24942 / 24929	DEF	AT last sample examined	DEF	AT	5

MD / TVD

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 586

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 485 Date of Summary: 18-SEP-2002 First Sample Examined: 14990 Lease Number: G20070 Source of Paleo: OPERATOR 24942 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24929 **API Well Number:** 608114034300 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 Sample Range: 14990 - 24942 2796 Water Depth: Public Info Code: Y 31-JUL-2008 002 **Ecozone Eq MMS:** Paleo ID:

Remark: Calcareous nannofossil report, 15470=increased shale containing a mixed Oligocene and Eocene floral assemblage to 15560, 16310=increased shale containing a mixed Eocene floral assemblage to 16430, 17060=increased shale containing a mixed Eocene and Oligocene floral assemblage, 17150=out of salt, with a mixed Pliocene flora with Oligocene and Eocene flora, 17210=normal section, at or below Ceratolithus acutus LAD, nannospecies abundance and diversity chart available, see report for details

WID / I VD		Paleo Top Description		Ecozone
14990 / 14984	DEF	AT first sample examined	DEF	AT
14991 / 14985	DEF	IN salt	DEF	AT
15470 / 15464	DEF	AT out-of-place section	DEF	AT
17150 / 17144	DEF	AT base of salt	DEF	AT
17151 / 17145	DEF	AT out-of-place section	DEF	AT
17210 / 17204	DEF	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
17450 / 17444	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
20000 / 19994	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
21620 / 21614	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
22460 / 22453	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
22550 / 22543	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
22700 / 22693	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
23510 / 23502	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
23540 / 23532	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
24942 / 24929	DEF	AT last sample examined	DEF	AT

Paleo Ton Description

GEOLOGIC 02-FEB-2011 PAGE: 587

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 517 7512 Date of Summary: 19-SEP-2008 First Sample Examined: Lease Number: G05923 Source of Paleo: OPERATOR 13110 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12183 Drilling Operator: ENI US OPERATING CO INC **API Well Number:** 608114051600 **Rkb Elevation:** 80 **Sample Range:** 7512 - 13110 Paleo Report Num: 1 of 1 3908 Water Depth: Public Info Code: Y 25-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
7512 / 7512	DEF	AT first sample examined	DEF	AT	5
7560 / 7560	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT	5
7740 / 7740	DEF	AT reworked material	DEF	AT	5
7800 / 7800	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
9170 / 9153	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	5
9919 / 9834	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	IN	5
9920 / 9834	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	IN	5
10010 / 9908	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
10040 / 9932	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	5
11570 / 11047	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	5
11599 / 11069	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
11600 / 11069	POS	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
11630 / 11092	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
12079 / 11423	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	IN	5
12080 / 11423	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	IN	5
12200 / 11512	POS	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
12530 / 11755	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	IN	5
12558 / 11776	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	IN	5
12559 / 11777	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
12560 / 11777	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
12770 / 11932	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	5
12800 / 11954	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	IN	5

GEOLOGIC

588

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 517 Date of Summary: 19-SEP-2008 First Sample Examined: 7512 Lease Number: G05923 Source of Paleo: OPERATOR **Borehole MD:** 13110 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12183 Drilling Operator: ENI US OPERATING CO INC **API Well Number:** 608114051600 **Rkb Elevation:** 80 Paleo Report Num: 1 of 1 **Sample Range:** 7512 - 13110 3908 Water Depth: Public Info Code: Y 25-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
12890 / 12021	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF II	N	5
13039 / 12130	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF II	N	5
13040 / 12131	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF II	N	5
13110 / 12183	DEF	AT last sample examined	DEF II	N	5

GEOLOGIC 02-FEB-2011 PAGE: 589

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-SEP-1999 21440 First Sample Examined: Lease Number: G11075 Source of Paleo: OPERATOR 25971 **Borehole MD:** Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 25230 **Drilling Operator: CONOCO INC API Well Number:** 608114024601 **Rkb Elevation:** 79 Paleo Report Num: 1 of 2 **Sample Range:** 21440 - 25970 3979 Water Depth: Public Info Code: Y 21-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
21440 /21399	DEF	AT first sample examined	DEF	AT
21441 / 21400	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
21500 / 21459	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
21560 / 21518	DEF	AT reworked material	DEF	AT
21590 / 21548	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
21710 / 21666	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	AT
21890 / 21839	DEF	IN Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
23060 / 22845	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
23180 / 22942	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
23240 / 22990	DEF	IN Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
23300 / 23038	DEF	IN Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
23360 / 23087	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
23480 / 23183	DEF	IN Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
23540 / 23231	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
23600 / 23280	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
23810 / 23448	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
23811 / 23449	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
24230 / 23784	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
24440 / 23955	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
24650 / 24127	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
24680 / 24152	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
24770 / 24227	DEF	AT Middle Miocene (Langhian) Helicosphaera mediterranea	DEF	AT

GEOLOGIC

02-FEB-2011 PAGE: 590

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-SEP-1999 First Sample Examined: 21440 Lease Number: G11075 Source of Paleo: OPERATOR **Borehole MD:** 25971 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 25230 **Drilling Operator: CONOCO INC API Well Number:** 608114024601 **Rkb Elevation:** 79 3979

> Paleo Report Num:
>  1 of 2
>  Sample Range:
>  21440 - 25970
>  Water Depth:
>  3979
>
>
>  Public Info Code:
>  Y 21-OCT-2009
>  Ecozone Eq MMS:
>  Paleo ID:
>  002

MD / TVD		Paleo Top Description		<b>Ecozone</b>
25220 / 24602	DEF	AT reworked material	DEF	AT
25250 / 24627	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
25600 / 24920	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
25917 / 25185	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
25918 / 25186	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT
25919 / 25187	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
25940 / 25204	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus (increase)	DEF	AT
25970 / 25229	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 591

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-OCT-1999 21440 First Sample Examined: Lease Number: G11075 Source of Paleo: OPERATOR 25971 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25230 **Drilling Operator: CONOCO INC API Well Number:** 608114024601 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 21440 - 25970 3979 Water Depth: Public Info Code: Y 21-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
21440 / 21399	DEF	AT first sample examined	DEF	AT	5
21441 / 21400	POS	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	5
21530 / 21489	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
21590 / 21548	DEF	AT faunal change (no faunal increase)	DEF	AT	4
21680 / 21636	POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	4
21730 / 21685	DEF	AT	DEF	IN	4
21950 / 21896	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	IN	4
22220 / 22145	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
22280 / 22199	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	IN	4
22700 / 22555	DEF	AT local marker foram increase	DEF	IN	4
22760 / 22603	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	4
22820 / 22652	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
22940 / 22748	DEF	AT local marker foram increase	DEF	IN	4
23240 / 22990	DEF	AT local marker foram increase	DEF	IN	4
23270 / 23014	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	4
23390 / 23111	DEF	IN Middle Miocene (Serravallian) Bigenerina humblei	DEF	IN	5
23660 / 23328	DEF	AT faunal change (no faunal increase)	DEF	IN	4
24080 / 23664	DEF	AT local marker foram increase	DEF	IN	4
24530 / 24029	DEF	IN Middle Miocene (Langhian) Robulus "L" / 43	DEF	IN	4
24650 / 24127	DEF	AT local marker foram increase	DEF	IN	4
25130 / 24527	DEF	AT	DEF	AT	4
25220 / 24602	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	4

**GEOLOGIC** 02-FEB-2011

PAGE: 592

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-OCT-1999 First Sample Examined: 21440 Source of Paleo: OPERATOR Lease Number: G11075 **Borehole MD:** 25971 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 25230 **Drilling Operator: CONOCO INC API Well Number:** 608114024601 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 21440 - 25970 3979 Water Depth: Paleo ID: 001

Public Info Code: Y 21-OCT-2009 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<u>E</u>	cozone
25250 / 24627	DEF	AT local marker foram increase	DEF	IN	4
25400 / 24753	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	IN	4
25460 / 24803	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	IN	4
25720 / 25020	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
25940 / 25204	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	5
25970 / 25229	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 593

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 7020 Date of Summary: 01-JUL-1999 First Sample Examined: Lease Number: G11075 Source of Paleo: OPERATOR 25624 **Borehole MD:** Well Name: SS001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25564 **Drilling Operator: CONOCO INC API Well Number:** 608114024600 **Rkb Elevation:** 79 **Sample Range:** 7020 - 25620 Paleo Report Num: 1 of 2 3979 Water Depth: Public Info Code: Y 13-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: 24280=rare Globigerinoides diminutus, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec.	ozone
7020 / 7020	DEF	AT first sample examined	DEF	AT	4
7260 / 7260	POS	AT local marker foram increase	DEF	AT	4
7500 / 7500	DEF	AT Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	AT	6
7620 / 7620	DEF	AT faunal change (no faunal increase)	DEF	AT	5
7680 / 7680	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8010 / 8010	DEF	AT local marker planktic foram increase	DEF	AT	5
8220 / 8220	DEF	AT faunal change (no faunal increase)	DEF	AT	4
8580 / 8580	DEF	AT faunal change (no faunal increase)	POS	AT	5
8880 / 8880	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9120 / 9120	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9180 / 9180	DEF	AT local marker planktic foram increase	DEF	AT	5
9300 / 9300	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9480 / 9480	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9510 / 9510	DEF	AT local marker planktic foram increase	DEF	AT	5
9750 / 9750	DEF	AT faunal change (no faunal increase)	DEF	IN	4
10080 / 10080	DEF	AT faunal change (no faunal increase)	DEF	IN	3
10260 / 10259	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10410 / 10409	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	4
10440 / 10439	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
10620 / 10619	DEF	AT local marker foram increase	DEF	IN	5
10740 / 10739	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10770 / 10769	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 594

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 562Date of Summary: 01-JUL-1999First Sample Examined: 7020Lease Number: G11075Source of Paleo: OPERATORBorehole MD: 25624

Well Name: SS001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Borehole TVD: 25564

 API Well Number:
 608114024600
 Drilling Operator:
 CONOCO INC
 Rkb Elevation:
 79

 Paleo Report Num:
 1 of 2
 Sample Range:
 7020 - 25620
 Water Depth:
 3979

Public Info Code: Y 13-SEP-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
11220 / 11219	DEF	AT local marker planktic foram increase	DEF	AT	5
11490 / 11489	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	6
11550 / 11549	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	6
11610 / 11609	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	6
11670 / 11669	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	6
11730 / 11729	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
11910 / 11909	DEF	AT gypsum	DEF	AT	6
12140 / 12139	DEF	AT salt	POS	ΑT	6
21119 / 21079	DEF	AT base of salt	DEF	ΑT	4
21120 / 21080	POS	AT Pliocene	DEF	ΑT	4
21121 /21081	POS	AT Miocene	DEF	ΑT	4
21240 / 21200	DEF	AT faunal change (no faunal increase)	POS	IN	3
21300 / 21260	DEF	AT faunal change (no faunal increase)	DEF	AT	5
21370 / 21330	POS	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	5
21400 / 21360	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	5
21440 / 21399	DEF	AT faunal change (no faunal increase)	POS	ΑT	5
21590 / 21549	POS	AT Upper Miocene (Tortonian) Textularia "G"	POS	ΑT	5
21680 / 21639	POS	AT Upper Miocene (Tortonian) Cibicides crebbsi	POS	ΑT	5
21800 / 21758	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
21870 / 21828	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
21930 / 21888	POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	5
22080 / 22037	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
22280 / 22236	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	ΑT	4
22700 / 22654	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4

GEOLOGIC 02-FEB-2011

595

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GC 562Date of Summary:01-JUL-1999First Sample Examined:7020Lease Number:G11075Source of Paleo:OPERATORBorehole MD:25624Well Name:SS001Paleo Done By:APPLIED BIOSTRATIGRAPHIXBorehole TVD:25564

 API Well Number:
 608114024600
 Drilling Operator:
 CONOCO INC
 Rkb Elevation:
 79

 Paleo Report Num:
 1 of 2
 Sample Range:
 7020 - 25620
 Water Depth:
 3979

Public Info Code: Y 13-SEP-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
23020 / 22973	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
23120 / 23072	DEF	AT Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	AT	4
23170 / 23122	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF	AT	4
23250 / 23201	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
23380 / 23331	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
23460 / 23410	DEF	AT faunal change (no faunal increase)	DEF	IN	4
23560 / 23510	DEF	AT	DEF	AT	4
23780 / 23729	DEF	AT local marker foram increase	DEF	AT	5
23840 / 23789	DEF	AT faunal change (no faunal increase)	DEF	IN	4
23980 / 23928	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
24039 / 23987	DEF	AT condensed section	DEF	AT	5
24040 / 23988	DEF	IN Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	5
24060 / 24008	DEF	IN Middle Miocene (Serravallian) Cibicides opima	DEF	IN	4
24160 / 24107	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	IN	4
24200 / 24147	DEF	AT faunal change (no faunal increase)	DEF	IN	4
24240 / 24187	POS	AT local marker planktic foram increase	DEF	IN	5
24280 / 24227	POS	IN Middle Miocene (Langhian) Robulus "L" / 43	DEF	IN	5
24340 / 24287	DEF	AT	DEF	AT	5
24420 / 24366	DEF	AT faunal change (no faunal increase)	DEF	IN	4
24580 / 24525	DEF	AT local marker foram increase	DEF	AT	4
24710 / 24655	DEF	AT local marker planktic foram increase	DEF	AT	4
24750 / 24694	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	ΑT	4
24810 / 24754	DEF	AT	DEF	IN	4
24870 / 24814	DEF	AT	DEF	AT	4

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 596

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-JUL-1999 First Sample Examined: 7020 Lease Number: G11075 Source of Paleo: OPERATOR **Borehole MD:** 25624 Well Name: SS001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25564 **Drilling Operator: CONOCO INC API Well Number:** 608114024600 **Rkb Elevation:** 79 Paleo Report Num: 1 of 2 **Sample Range:** 7020 - 25620 3979 Water Depth:

Public Info Code: Y 13-SEP-2009 Ecozone Eq MMS: Y

MD/TVD	Paleo Top Description	<u>Ecozone</u>
25110 / 25052	DEF AT	DEF IN 4
25590 / 25530	DEF AT Arenaceous fauna (local marker)	DEF IN 4
25620 / 25560	DEF AT last sample examined	DEF IN 4

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 597 PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-AUG-1999 First Sample Examined: 7020 Lease Number: G11075 Source of Paleo: OPERATOR 25624 **Borehole MD:** Well Name: SS001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25564 **API Well Number: 608114024600 Drilling Operator: CONOCO INC Rkb Elevation:** 79 Paleo Report Num: 2 of 2 Sample Range: 7020 - 25620 3979 Water Depth: Public Info Code: Y 13-SEP-2009 001 **Ecozone Eq MMS:** Paleo ID:

Remark: Calcareous nannofossil report, 25410=Ericsonia fenestrata (reworked?), 25440=Helicosphaera compacta (reworked?), Coccolithus eopelagicus (reworked), still in Lower Miocene at TD - normally the consistent occurrence of Dictyococcites bisectus indicates the top of the global Oligocene, and is somewhat supported by the presence of the Lowermost Miocene LAD of Ericsonia fenestrata - the presence, however, of some reworked Eocene specimens in the sample at 25440 may indicate that the Dictyococcites bisectus specimens are also reworked - the lack of Spheniolithus ciperoensis (with the exception of a single specimen at 25350) and the lack of Dictyococcites bisectus below 25440 support this, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecozone
7020 / 7020	DEF	AT first sample examined	DEF	F AT
7380 / 7380	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa parallela	DEF	F AT
7500 / 7500	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	F AT
7800 / 7800	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	F AT
7950 / 7950	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	F AT
9090 / 9090	DEF	AT local marker floral increase	DEF	F AT
9180 / 9180	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	F AT
10440 / 10439	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	F AT
10500 / 10499	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	F AT
10620 / 10619	DEF	AT reworked material	DEF	F AT
10740 / 10739	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	F AT
11130 /11129	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa caribbeanica (flood)	DEF	F AT
11219 / 11218	DEF	AT reworked material	DEF	F AT
11220 /11219	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	F AT
11309 / 11308	DEF	AT reworked material	DEF	F AT
11310 / 11309	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	F AT
11459 / 11458	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	F AT
11460 / 11459	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	F AT

**GEOLOGIC** 02-FEB-2011 PAGE: 598

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-AUG-1999 First Sample Examined: 7020 Lease Number: G11075 Source of Paleo: OPERATOR **Borehole MD:** 25624 Well Name: SS001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25564 **Drilling Operator: CONOCO INC API Well Number:** 608114024600 **Rkb Elevation:** 79 3979

Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 25620 Water Depth:

Public Info Code: Y 13-SEP-2009 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11489 / 11488	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
11490 / 11489	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11550 / 11549	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
11670 / 11669	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11730 / 11729	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
11790 / 11789	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica "B"	DEF	AT
11819 / 11818	POS	AT unconformity	DEF	AT
11820 / 11819	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12140 / 12139	DEF	AT salt	DEF	AT
21118 / 21078	DEF	AT base of salt	DEF	AT
21119 / 21079	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
21120 / 21080	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
21799 / 21757	DEF	AT unconformity	DEF	AT
21800 / 21758	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
22480 / 22435	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
22718 / 22672	DEF	AT unconformity	DEF	AT
22719 / 22673	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
22720 / 22674	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	AT
22960 / 22913	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
23120 / 23072	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
23460 / 23410	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
23740 / 23689	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
23760 / 23709	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
24140 / 24087	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT

GEOLOGIC 02-FEB-2011

599

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 562 Date of Summary: 01-AUG-1999 First Sample Examined: 7020 Lease Number: G11075 Source of Paleo: OPERATOR **Borehole MD:** 25624 Well Name: SS001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25564 **Drilling Operator: CONOCO INC API Well Number:** 608114024600 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 25620 3979 Water Depth:

Public Info Code: Y 13-SEP-2009 Ecozone Eq MMS:

MD / TVD	Paleo Top D	<u>escription</u>	<u>Ecozone</u>	
24240 / 24187	DEF AT Middle Mioce	ene (Langhian) Discoaster druggi	DEF AT	
24300 / 24247	DEF AT Middle Mioce	ene (Langhian) Discoaster deflandrei (increase)	DEF AT	
24570 / 24515	DEF AT Middle Mioce	ene (Langhian) Discoaster deflandrei (acme)	DEF AT	
24580 / 24525	DEF AT reworked ma	aterial	DEF AT	
24670 / 24615	DEF AT Lower Mioce	ne (Burdigalian) Sphenolithus belemnos	DEF AT	
25170 / 25112	DEF AT reworked ma	aterial	DEF AT	
25189 / 25131	DEF AT Lower Mioce	ne (Burdigalian) Triquetrorhabdulus carinatus	DEF AT	
25190 / 25132	DEF IN Lower Mioce	ne (Burdigalian) Discoaster calculosus (increase)	DEF AT	
25320 / 25261	DEF AT reworked ma	aterial	DEF AT	
25360 / 25301	DEF AT Lower Mioce	ne (Aquitanian) Cyclicargolithus abisectus	DEF AT	
25410 / 25350	DEF AT reworked ma	aterial	DEF AT	
25589 / 25529	DEF AT Lower Mioce	ne (Aquitanian) Helicosphaera recta	DEF AT	
25590 / 25530	DEF AT Lower Mioce	ne (Aquitanian) Discoaster woodringii	DEF AT	
25620 / 25560	DEF AT last sample	examined	DEF AT	

GEOLOGIC 02-FEB-2011 PAGE: 600

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 Date of Summary: 11-OCT-1999 First Sample Examined: 6600 Source of Paleo: OPERATOR 25058 Lease Number: G11076 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 25000 **API Well Number:** 608114024900 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 6600 - 24990 4144 Water Depth: Public Info Code: Y 08-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, 18030 to 19320 = mixed fauna and flora of Middle to Late Miocene assemblage, 21150=mix of Late Miocene to Uvigerina 3 equivalent assemblageS, 21900=Late Eocene based on abundant planktic fauna and flora, 21930=Globigerinatheka index and

Globorotalia cerroazulensis cerroazulensis, 21990=Globigerinatheka spp, and Globigerinatheka index tropicalis with variety Globorotalia bulbrooki

(possibly reworked)

MD / TVD		Paleo Top Description		<u>Ecoz</u>	zone
6600 / 6600	DEF	AT first sample examined	DEF	AT	
7470 / 7470	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	
9840 / 9840	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	6
10380 / 10380	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT	6
11040 / 11040	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	6
11280 / 11280	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	6
11894 / 11894	DEF	AT cement	POS	AT	6
11910 / 11910	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	6
11911 / 11911	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	IN	6
11970 / 11970	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	IN	6
12150 / 12150	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	6
12210 / 12210	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	IN	6
12450 / 12450	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	6
12540 / 12540	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	6
12720 / 12719	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	IN	6
12749 / 12748	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	6
12750 / 12749	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	6
13020 / 13019	DEF	AT	POS	AT	6
13230 / 13229	DEF	AT	DEF	IN	6

**GEOLOGIC** 02-FEB-2011 PAGE: 601

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 Date of Summary: 11-OCT-1999 First Sample Examined: 6600 Source of Paleo: OPERATOR Lease Number: G11076 **Borehole MD:** 25058 **Borehole TVD:** 25000

Well Name: 001 Paleo Done By: OPERATOR

**Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114024900 **Rkb Elevation:** 86 4144 Water Depth:

**Sample Range:** 6600 - 24990 Paleo Report Num: 1 of 1

Public Info Code: Y 08-OCT-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
13620 / 13619	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	6
13890 / 13889	DEF	AT	DEF	ΑT	6
13980 / 13979	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	6
14370 / 14369	DEF	AT	POS	ΑT	6
14520 / 14519	DEF	AT	DEF	ΑT	6
16080 / 16079	DEF	AT	POS	ΑT	6
16590 / 16589	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	ΑT	6
17070 / 17069	DEF	AT sample gap top	POS	ΑT	6
17240 / 17239	DEF	AT sample gap bottom	DEF	ΑT	6
18030 / 18029	DEF	AT Miocene	DEF	ΑT	6
18150 / 18149	DEF	AT	DEF	IN	6
18570 / 18569	DEF	AT salt	POS	IN	6
21030 / 21021	DEF	AT base of salt	POS	ΑT	6
21150 / 21140	DEF	AT Miocene	POS	ΑT	6
21330 / 21319	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	POS	ΑT	6
21450 / 21439	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	ΑT	6
21540 / 21529	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	POS	ΑT	6
21630 / 21618	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	ΑT	6
21810 / 21798	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	ΑT	6
21900 / 21888	DEF	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	ΑT	6
21930 / 21918	DEF	IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	ΑT	6
21988 / 21976	POS	AT gouge	DEF	ΑT	6
21989 / 21977	POS	AT reworked material	DEF	ΑT	6
21990 / 21978	POS	IN Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	ΑT	6

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 602

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 Date of Summary: 11-OCT-1999 First Sample Examined: 6600

> Source of Paleo: OPERATOR Lease Number: G11076 **Borehole MD:** 25058 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 25000

**Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114024900 **Rkb Elevation:** 86

Paleo Report Num: 1 of 1 **Sample Range:** 6600 - 24990 4144 Water Depth: Paleo ID: 001

Public Info Code: Y 08-OCT-2009 **Ecozone Eq MMS:** Y

MD / TVD	Paleo Top Description	<u>Ecozone</u>
22020 / 22008	DEF AT salt	DEF AT 6
24990 / 24934	DEF AT last sample examined	DEF AT 6

GEOLOGIC 02-FEB-2011

603

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 Date of Summary: 01-MAY-2000 First Sample Examined: 15850 Source of Paleo: OPERATOR 22980 Lease Number: G11076 **Borehole MD:** Well Name: 001 22609 Paleo Done By: OPERATOR **Borehole TVD:** API Well Number: 608114024901 **Drilling Operator: BP EXPLORATION & OIL INC Rkb Elevation:** 86 Paleo Report Num: 1 of 1 Sample Range: 15850 - 22980 4144 Water Depth: Public Info Code: Y 15-JUN-2010 001 **Ecozone Eg MMS:** Y Paleo ID:

Remark: Company-integrated foram and nanno report, 18780=apparent repeat section, from 19590 to 19779, a mixed fauna was found from the Early and Middle Miocene, from 21840 to 22160 the section is an apparent repeat Upper Miocene assemblage, 22530=mixed age faunal assemblages

MD / TVD Paleo Top Description **Ecozone** 15850 / 15849 AT first sample examined POS AT 5 DEF 15851 / 15850 DEF IN Upper Miocene (Messinian) Discoaster berggrenii POS AT 5 DEF POS AT 5 15960 / 15959 IN Upper (Late) Miocene DEF AT ----DEF AT 6 16740 / 16724 16770 / 16752 DEF AT Upper Miocene (Tortonian) Discoaster loeblichii DEF AT 6 17070 / 17031 AT Upper Miocene (Tortonian) Catinaster mexicanus DEF AT 6 17190 / 17141 DEF AT Upper Miocene (Tortonian) Minylitha convallis DEF AT 6 17220 / 17168 AT Upper Miocene (Tortonian) Catinaster coalitus DEF AT 6 DEF AT reworked material 17590 / 17504 DEF ΑT 6 18210 / 18069 DEF AT Middle Miocene (Serravallian) Coccolithus miopelagicus DEF AT 6 AT Middle Miocene (Serravallian) Cyclicargolithus floridanus DEF AT 6 18540 / 18368 18600 / 18422 DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus DEF AT 6 DEF DEF 18689 / 18501 AT Upper Miocene (Tortonian) Catinaster mexicanus IN 6 DEF AT local marker planktic foram increase DEF IN 6 18690 / 18502 18691 / 18503 POS AT Upper Miocene (Tortonian) Globoquadrina dehiscens DEF IN 6 DEF AT Arenaceous fauna (local marker) DEF IN 6 18750 / 18556 AT Upper Miocene (Tortonian) Minylitha convallis DEF 18780 / 18583 IN 6 DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF IN 6 19110 / 18878 DEF DEF 6 19440 / 19176 AT Middle Miocene (Serravallian) Discoaster sanmiguelensis IN 19470 / 19203 POS AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi DEF IN 6 POS AT Middle Miocene DEF 6 19590 / 19313 IN

GEOLOGIC 02-FEB-2011 PAGE: 604

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 First Sample Examined: 15850 Date of Summary: 01-MAY-2000 Source of Paleo: OPERATOR Lease Number: G11076 **Borehole MD:** 22980 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 22609 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114024901 **Rkb Elevation:** 86 **Sample Range:** 15850 - 22980 Paleo Report Num: 1 of 1 4144 Water Depth:

Public Info Code: Y 15-JUN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>Ecozone</u>
19591 / 19314	POS	AT Paleocene	DEF	IN	6
19770 / 19479	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	IN	6
19860 / 19563	DEF	AT	DEF	IN	6
19920 / 19618	POS	AT Paleocene	DEF	IN	6
19921 / 19619	POS	AT Oligocene Anahuac Formation/Provincial Stage	DEF	IN	6
20400 / 20066	DEF	AT salt	DEF	ΑT	
21839 / 21467	DEF	AT base of salt	DEF	ΑT	
21840 / 21468	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	
21900 / 21528	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	ΑT	
21930 / 21558	DEF	AT	DEF	IN	6
22050 / 21678	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	IN	6
22160 / 21788	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	6
22530 / 22158	DEF	AT out-of-place section	DEF	IN	6
22980 / 22608	DEF	AT last sample examined	DEF	IN	6

GEOLOGIC 02-FEB-2011

PAGE:

605

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 Date of Summary: 01-DEC-2000 First Sample Examined: 22410 Lease Number: G11076 Source of Paleo: OPERATOR 26442 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 25946 **API Well Number:** 608114024903 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 86 Water Depth: Paleo Report Num: 1 of 1 **Sample Range:** 22410 - 26442 4144 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, from 23490 to 24870, huge amounts of additive in the samples throughout this interval preclude foram zonations, 25470=one pyritized Globigerinoides primordius, 26442=TD=predominantly mid-Upper Oligocene forams, but still with some mid-Upper Eocene fossils, and a mix of Middle Eocene and Oligocene nannoflora

MD / TVD		Paleo Top Description		<u> </u>	cozone
22410 / 21976	DEF	AT first sample examined	DEF	IN	5
22440 / 22006	DEF	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	IN	5
22560 / 22126	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	5
22920 / 22486	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	IN	5
23309 / 22875	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	IN	5
23310 / 22876	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	5
23430 / 22996	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	IN	5
23490 / 23056	DEF	AT drilling material	DEF	IN	5
23610 / 23176	DEF	AT faunal change (no faunal increase)	POS	ΑT	6
23730 / 23296	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	POS	ΑT	6
23731 / 23297	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	POS	ΑT	6
24393 / 23958	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	ΑT	6
24630 / 24195	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	ΑT	6
24860 / 24424	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	ΑT	6
24870 / 24433	POS	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	ΑT	6
24960 / 24522	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	ΑT	6
25185 / 24743	POS	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	ΑT	6
25470 / 25021	DEF	AT pyrite	POS	ΑT	6
25530 / 25080	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	ΑT	6
25800 / 25342	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	ΑT	6

GEOLOGIC

606

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 563 Date of Summary: 01-DEC-2000 First Sample Examined: 22410 Source of Paleo: OPERATOR Lease Number: G11076 **Borehole MD:** 26442 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 25946 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114024903 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 22410 - 26442 4144 Water Depth:

Public Info Code: Y 19-SEP-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ec	ozone
25890 / 25428	DEF	AT Oligocene	DEF	IN	5
25905 / 25443	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	IN	5
25965 / 25500	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	IN	5
26085 / 25614	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	IN	5
26100 / 25628	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	IN	5
26101 / 25629	POS	AT Upper Oligocene (Chattian) Globorotalia opima nana	DEF	IN	5
26102 / 25630	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	IN	5
26160 / 25684	POS	AT Upper (Late) Eocene	DEF	IN	5
26250 / 25769	DEF	AT Middle Eocene	DEF	IN	5
26280 / 25796	DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	IN	5
26295 / 25810	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	IN	5
26310 / 25824	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	IN	5
26440 / 25945	POS	IN Upper Oligocene Chattian Stage	DEF	IN	5
26441 / 25946	POS	AT Middle Eocene	DEF	IN	5
26442 / 25947	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 607

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 601 7060 Date of Summary: 25-FEB-2002 First Sample Examined: Lease Number: G21218 Source of Paleo: OPERATOR 24120 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24092 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608114031000 **Rkb Elevation:** 83 **Sample Range:** 7060 - 24120 Paleo Report Num: 1 of 2 Water Depth: 4489 Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7060 / 7060	DEF	AT first sample examined	DEF	AT
11260 / 11259	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
15420 / 15419	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
17310 / 17309	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
18090 / 18089	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
18450 / 18449	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
19110 / 19109	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
19230 / 19229	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
19440 / 19439	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
19590 / 19589	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
19650 / 19648	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
19680 / 19678	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
20130 / 20128	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
20910 / 20907	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
22260 / 22253	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
23100 / 23087	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
24060 / 24038	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
24120 / 24098	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 608

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 601 Date of Summary: 26-FEB-2002 7060 First Sample Examined: Lease Number: G21218 Source of Paleo: OPERATOR 24120 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24092 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608114031000 **Rkb Elevation:** 83 Paleo Report Num: 2 of 2 **Sample Range:** 7060 - 24120 Water Depth: 4489 Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
7060 / 7060	DEF	AT first sample examined	DEF	IN	5
7330 / 7330	DEF	AT Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	IN	5
7360 / 7360	DEF	AT	DEF	AT	5
9580 / 9579	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
12390 / 12389	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	ΑT	5
17310 / 17309	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
18120 / 18119	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	ΑT	5
18480 / 18479	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
19350 / 19349	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
19440 / 19439	DEF	AT	DEF	IN	5
19470 / 19469	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
19500 / 19499	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
19530 / 19529	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
19679 / 19677	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
19680 / 19678	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
19800 / 19798	DEF	AT	DEF	ΑT	5
20160 / 20158	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	5
20250 / 20248	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
23010 / 22997	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
23100 / 23087	DEF	AT	DEF	IN	5
23250 / 23236	DEF	AT	DEF	ΑT	5
24120 / 24098	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 609

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 27-JUL-2000 7070 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 14500 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14498 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027400 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 7070 - 13225 Water Depth: 4320 Public Info Code: Y 21-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
7070 / 7070	DEF	AT first sample examined	POS	AT	5
7071 / 7071	DEF	AT cement	POS	AT	5
7220 / 7220	DEF	AT	DEF	AT	5
8570 / 8569	DEF	AT	DEF	AT	4
9980 / 9979	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
10600 / 10599	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
10930 / 10929	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
11020 / 11019	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11050 / 11049	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
11287 / 11286	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
11288 / 11287	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
11289 / 11288	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
11290 / 11289	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
11349 / 11348	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
11350 / 11349	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
11440 / 11439	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
11470 / 11469	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
11560 / 11559	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	IN	5
11709 / 11708	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
11710 / 11709	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	5
13180 / 13179	POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	IN	5
13225 / 13224	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 610

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 27-JUL-2000 7070 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 14500 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14498 **API Well Number: 608114027400 Drilling Operator:** ANADARKO PETROLEUM CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7070 - 13225 Water Depth: 4320 Public Info Code: Y 21-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7070 / 7070	DEF	AT first sample examined	DEF	AT
7550 / 7549	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
10000 / 9999	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
10540 / 10539	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
10570 / 10569	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10960 / 10959	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
11050 / 11049	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11110 / 11109	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11290 / 11289	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
11320 / 11319	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11380 / 11379	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11469 / 11468	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11470 / 11469	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11560 / 11559	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
11680 / 11679	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12580 / 12579	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
12879 / 12878	POS	AT salt weld	DEF	AT
12880 / 12879	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
12999 / 12998	POS	AT salt weld	DEF	AT
13000 / 12999	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
13180 / 13179	POS	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
13210 / 13209	DEF	AT salt	DEF	AT

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 611

7070

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 608 Date of Summary: 27-JUL-2000 First Sample Examined:

Lease Number:G18402Source of Paleo:OPERATORBorehole MD:14500Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:14498

API Well Number: 608114027400 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 82

Paleo Report Num:2of2Sample Range:7070 - 13225Water Depth:4320Public Info Code:Y21-MAY-2010Ecozone Eq MMS:Paleo ID:003

MD / TVD Paleo Top Description Ecozone

13225 / 13224 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 612

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 27-JUL-2000 7170 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 18684 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17108 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027401 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 7170 - 18410 Water Depth: 4263 Public Info Code: Y 22-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	cozone
7170 / 7170	DEF	AT first sample examined	DEF	AT	5
8910 / 8797	DEF	AT	DEF	AT	4
9870 / 9615	DEF	AT	DEF	AT	5
9960 / 9692	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
11430 / 10935	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
11819 / 11262	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
11820 / 11263	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
12059 / 11465	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
12060 / 11465	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
12088 / 11489	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
12089 / 11490	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
12090 / 11491	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
12210 / 11593	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
12270 / 11643	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
12390 / 11745	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
12420 / 11770	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
12480 / 11821	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	IN	5
12660 / 11972	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
16240 / 14962	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	IN	5
16390 / 15087	DEF	AT	DEF	AT	5
18020 / 16506	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
18140 / 16614	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 613

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 608 Date of Summary: 27-JUL-2000 First Sample Examined: 7170

Lease Number:G18402Source of Paleo:OPERATORBorehole MD:18684Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:17108

API Well Number: 608114027401 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 82

Paleo Report Num: 1 of 2 Sample Range: 7170 - 18410 Water Depth: 4263

Public Info Code: Y 22-JUL-2010 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVDPaleo Top DescriptionEcozone18410 / 16859DEF AT last sample examinedDEF AT 5

GEOLOGIC 02-FEB-2011 PAGE: 614

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 27-JUL-2000 7170 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 18684 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17108 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027401 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7170 - 18410 Water Depth: 4263 Public Info Code: Y 22-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7170 / 7170	DEF	AT first sample examined	DEF	AT
7590 / 7585	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9990 / 9717	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
11400 / 10910	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
11850 / 11288	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12060 / 11465	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12090 / 11491	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12120 / 11516	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12240 / 11618	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
12390 / 11745	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
12450 / 11796	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
12600 / 11922	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12660 / 11972	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
14380 / 13412	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
15010 / 13937	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
15400 / 14262	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
15610 / 14436	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
15849 / 14634	POS	AT salt weld	DEF	AT
15850 / 14635	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16030 / 14785	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16330 / 15037	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
16580 / 15246	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 615

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 27-JUL-2000 7170 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 18684 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17108 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027401 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7170 - 18410 Water Depth: 4263 Public Info Code: Y 22-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 002

<u> MD / TVD</u>		Paleo Top Description		<u>Ecozone</u>
17780 / 16291	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
18110 / 16587	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
18320 / 16777	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
18410 / 16859	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 616

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 15130 Date of Summary: 07-AUG-2000 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 19510 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18224 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027402 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 15130 - 19510 4263 Water Depth: Public Info Code: Y 09-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>		Paleo Top Description		<u>Ecozone</u>
15130 / 14037	DEF	AT first sample examined	DEF	AT
15430 / 14290	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
15610 / 14448	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
15850 / 14661	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
15970 / 14769	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16220 / 14998	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
16400 / 15165	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
17350 / 16071	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
17740 / 16456	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
17961 / 16676	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
18030 / 16745	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
18060 / 16775	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
18180 / 16895	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
18270 / 16985	DEF	AT domal material	DEF	AT
18420 / 17135	DEF	AT salt	DEF	AT
19510 / 18224	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

617

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 07-AUG-2000 17200 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR **Borehole MD:** 19510 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18224 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027402 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 15130 - 17961 4263 Water Depth: Public Info Code: Y 09-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco:	zone
15130 / 14037	DEF	AT first sample examined	DEF	AT	5
16180 / 14961	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
17590 / 16308	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
17709 / 16425	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
17710 / 16426	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
17860 / 16575	DEF	AT	DEF	IN	5
18060 / 16775	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5
18210 / 16925	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	IN	5
18750 / 17464	DEF	AT salt	DEF	IN	5
19510 / 18224	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 618

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 13-SEP-2000 7110 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 15188 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13400 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027403 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 7110 - 15188 Water Depth: 4263 Public Info Code: Y 07-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
7110 / 7109	DEF	AT first sample examined	DEF	AT	5
8730 / 8600	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
12120 / 11070	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
12390 / 11271	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
12450 / 11315	DEF	AT local marker planktic foram increase	DEF	AT	5
12690 / 11487	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
12720 / 11508	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
12809 / 11571	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
12810 / 11572	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
12840 / 11594	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
12868 / 11614	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
12869 / 11615	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
12870 / 11615	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
12900 / 11637	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
12930 / 11659	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
12990 / 11703	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
13020 / 11724	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	IN	5
13290 / 11916	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	IN	5
13320 / 11937	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
13380 / 11980	DEF	AT	DEF	AT	5
13680 / 12196	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
14940 / 13183	DEF	AT local marker deep water fauna	DEF	IN	5

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 619

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 608 Date of Summary: 13-SEP-2000 First Sample Examined: 7110

Lease Number:G18402Source of Paleo:OPERATORBorehole MD:15188Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:13400

API Well Number: 608114027403 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 82

 Paleo Report Num:
 1 of 2
 Sample Range:
 7110 - 15188
 Water Depth:
 4263

Public Info Code: Y 07-SEP-2010 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVDPaleo Top DescriptionEcozone15188 / 13398DEF AT last sample examinedDEF IN 5

GEOLOGIC 02-FEB-2011

620

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 13-SEP-2000 7110 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 15188 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13400 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027403 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7110 - 15188 4263 Water Depth: Public Info Code: Y 07-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7110 / 7109	DEF	AT first sample examined	DEF	AT
7500 / 7496	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
10170 / 9642	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
11910 /10919	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
12690 / 11487	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
12750 /11529	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
12806 / 11569	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
12807 / 11570	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
12808 / 11571	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
12809 / 11571	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
12810 /11572	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
12900 /11637	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
12960 /11681	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
13200 / 11851	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
13320 /11937	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
14730 / 13005	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
15188 /13398	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 621

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 20-OCT-2000 7100 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 13445 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12331 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027404 **Rkb Elevation:** 82 **Sample Range:** 7100 - 13445 Paleo Report Num: 1 of 2 4263 Water Depth: Public Info Code: Y 08-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7100 / 7100	DEF	AT first sample examined	DEF	AT
7280 / 7278	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9920 / 9454	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
10880 / 10132	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10998 / 10220	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10999 / 10221	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11000 / 10222	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11450 / 10579	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11510 / 10628	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11720 / 10805	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
11840 / 10908	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12740 / 11698	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
13040 / 11969	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
13280 / 12184	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
13340 / 12238	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
13445 / 12331	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

622

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 20-OCT-2000 7100 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 13445 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12331 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114027404 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7100 - 13445 4263 Water Depth: Public Info Code: Y 08-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
7100 / 7100	DEF	AT first sample examined	DEF	AT	5
8630 / 8538	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8810 / 8684	DEF	AT	DEF	ΑT	4
10550 / 9895	DEF	AT	DEF	ΑT	5
10640 / 9959	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
11090 / 10290	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
11120 / 10313	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
11149 / 10336	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
11150 / 10337	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
11329 / 10480	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
11330 / 10481	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
11360 / 10505	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
11420 / 10554	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	IN	5
11510 / 10628	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
11538 / 10651	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
11539 / 10652	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
11540 / 10653	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
11780 / 10857	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
12860 / 11806	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	5
13310 / 12211	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	IN	5
13445 / 12331	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 623

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 23-JAN-2001 First Sample Examined: 6970 Lease Number: G18402 Source of Paleo: OPERATOR **Borehole MD:** 18071 17714 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114028800 **Rkb Elevation:** 82 **Sample Range:** 6970 - 18000 Paleo Report Num: 1 of 2 4269 Water Depth: Public Info Code: Y 19-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecc</u>	<u>ozone</u>
6970 / 6969	DEF	AT first sample examined	DEF	AT	5
7390 / 7389	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
7480 / 7479	DEF	AT	DEF	AT	4
9369 / 9368	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
9370 / 9369	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
9399 / 9398	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
9400 / 9399	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	4
9430 / 9429	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
9487 / 9486	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
9488 / 9487	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
9489 / 9488	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	5
9490 / 9489	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
9520 / 9519	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
9549 / 9548	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
9550 / 9549	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
9610 / 9608	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	IN	5
9670 / 9668	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
9700 / 9698	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	5
9880 / 9875	DEF	AT	DEF	AT	6
10090 / 10076	DEF	AT	DEF	IN	5
12340 / 12065	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	IN	5
14260 / 13915	DEF	AT	DEF	AT	4

**GEOLOGIC** 02-FEB-2011

PAGE: 624

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 23-JAN-2001 First Sample Examined: 6970 Lease Number: G18402 Source of Paleo: OPERATOR **Borehole MD:** 18071 17714 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114028800 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 6970 - 18000 4269 Water Depth: Paleo ID: 001

Public Info Code: Y 19-DEC-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
15040 / 14694	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
16210 / 15862	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
16360 / 16012	DEF	AT	DEF	ΑT	5
17109 / 16758	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
17110 / 16759	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
17570 / 17217	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	ΑT	5
17775 / 17421	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	ΑT	5
17920 / 17565	DEF	AT salt	DEF	ΑT	5
18000 / 17644	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 625

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 23-JAN-2001 6970 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 18071 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17714 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114028800 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 6970 - 18000 Water Depth: 4269 Public Info Code: Y 19-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6970 / 6969	DEF	AT first sample examined	DEF	AT
7210 / 7209	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9369 / 9368	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9370 / 9369	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9429 / 9428	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9430 / 9429	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9459 / 9458	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
9460 / 9459	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
9490 / 9489	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
9550 / 9549	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
9610 / 9608	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9700 / 9698	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12190 / 11929	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12940 / 12622	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
13870 / 13528	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
14020 / 13676	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
14350 / 14004	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
15130 / 14784	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15550 / 15203	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
15640 / 15293	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16240 / 15892	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
16720 / 16371	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT

GEOLOGIC

626

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 608 Date of Summary: 23-JAN-2001 6970 First Sample Examined: Lease Number: G18402 Source of Paleo: OPERATOR 18071 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17714 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608114028800 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 6970 - 18000 Water Depth: 4269 Public Info Code: Y 19-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 002

MD/TVD		Paleo Top Description		<u>Ecozone</u>
17110 / 16759	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
17470 / 17118	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
17710 / 17356	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
17830 / 17475	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
17860 / 17505	DEF	AT salt	DEF	AT
18000 / 17644	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 627

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 639 8474 Date of Summary: 11-NOV-2008 First Sample Examined: Lease Number: G20081 Source of Paleo: OPERATOR 28110 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28000 **API Well Number:** 608114051700 Drilling Operator: ENI US OPERATING CO INC **Rkb Elevation:** 87 3926 Paleo Report Num: 1 of 2 **Sample Range:** 8474 - 9820 Water Depth: Public Info Code: Y 20-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Suprasalt consultant-integrated foram and nanno report, salt encountered at 9800, no samples collected from 9820 to 14000, foram and nannofossil

species abundance and diversity charts available, see report for details

MD /	TVD		Paleo Top Description		Ecoz	zone
8474 /	8472	DEF	AT first sample examined	DEF	AT	5
8528 /	8526	POS	AT maximum flooding surface	DEF	AT	5
8529 /	8527	POS	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	5
8530 /	8528	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
8590 /	8588	DEF	AT	DEF	IN	5
8739 /	8737	POS	AT maximum flooding surface	DEF	IN	5
8740 /	8738	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
8770 /	8768	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
8800 /	8798	DEF	AT	DEF	AT	5
9099 /	9097	POS	AT maximum flooding surface	DEF	AT	5
9100 /	9098	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT	5
9160 /	9158	POS	IN Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
9519 /	9517	POS	AT maximum flooding surface	DEF	AT	5
9520 /	9518	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	5
9547 /	9545	DEF	AT condensed section	DEF	AT	5
9548 /	9546	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
9549 /	9547	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
9550 /	9548	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
9580 /	9578	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	5
9699 /	9697	POS	AT maximum flooding surface	DEF	AT	5
9700 /	9698	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5

**GEOLOGIC** 

02-FEB-2011 PAGE: 628

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 639 Date of Summary: 11-NOV-2008 First Sample Examined: 8474 Lease Number: G20081 Source of Paleo: OPERATOR **Borehole MD:** 28110 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28000 Drilling Operator: ENI US OPERATING CO INC **API Well Number:** 608114051700 **Rkb Elevation:** 87 Paleo Report Num: 1 of 2 **Sample Range:** 8474 - 9820 3926 Water Depth: Paleo ID: 001

Public Info Code: Y 20-MAY-2010 **Ecozone Eq MMS:** Y

MD / TVI	<u>D</u>	Paleo Top Description		Eco <sub>2</sub>	zone
9756 / 97	754 POS	AT maximum flooding surface	DEF	AT	5
9757 / 97	55 DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	5
9758 / 97	56 DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
9759 / 97	57 DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
9760 / 97	58 DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
9820 / 98	18 DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 629

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 639 Date of Summary: 25-SEP-2009 26590 First Sample Examined: Lease Number: G20081 Source of Paleo: OPERATOR 28110 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28000 **API Well Number:** 608114051700 Drilling Operator: ENI US OPERATING CO INC **Rkb Elevation:** 87 Paleo Report Num: 2 of 2 **Sample Range:** 26590 - 28100 3926 Water Depth: Public Info Code: Y 20-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Subsalt consultant-integrated foram and nanno report, 27401=overturned Turonian to Coniacian strata prevailing, continuing to Campanian-

Maastrichtian age to TD

MD / TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
26590 / 26525	DEF	AT first sample examined	DEF	AT	5
26591 / 26526	DEF	IN Upper Cretaceous (Cenomanian) Rotalipora appenninica	DEF	AT	5
26708 / 26638	POS	AT Upper Cretaceous (Cenomanian) Favusella washitensis	DEF	AT	5
26709 / 26639	POS	AT Upper Cretaceous (Cenomanian) Rotalipora gandolfii	DEF	AT	5
26710 / 26640	POS	AT Lower Cretaceous (Albian) Prediscosphaera columnata	DEF	AT	5
26800 / 26726	DEF	AT Upper Cretaceous (Cenomanian) Textularia rioensis	DEF	AT	
26950 / 26869	DEF	AT Upper Cretaceous (Cenomanian) Coriollithon kennedyi	DEF	AT	
27190 / 27100	DEF	AT Upper Cretaceous (Cenomanian) Lithraphidites acutus	DEF	AT	
27249 / 27158	DEF	AT radiolarians	DEF	AT	
27250 / 27159	POS	IN Upper Cretaceous (Cenomanian) Rotalipora appenninica	DEF	AT	
27401 / 27306	DEF	IN Upper Cretaceous (Turonian) Helvetoglobotruncana helvetica	DEF	AT	
27402 / 27307	DEF	IN Upper Cretaceous (Santonian) Lithastrinus moratus	DEF	AT	
27459 / 27363	DEF	IN Upper Cretaceous (Santonian) Dicarinella concavata	DEF	AT	
27460 / 27364	DEF	IN Upper Cretaceous (Santonian) Eprolithus floralis	DEF	AT	
27730 / 27628	DEF	IN Upper Cretaceous (Campanian) Aspidolithus parcus parcus	DEF	AT	
27910 / 27804	DEF	IN Upper Cretaceous (Campanian) Globotruncana elevata	DEF	AT	
28060 / 27951	DEF	IN Upper Cretaceous (Maastrichtian) Aspidolithus parcus constrictus	DEF	AT	
28100 / 27990	DEF	AT last sample examined	DEF	AT	

GEOLOGIC 02-FEB-2011 PAGE: 630

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 644 6593 Date of Summary: 18-JAN-1999 First Sample Examined: Lease Number: G11080 Source of Paleo: OPERATOR **Borehole MD:** 11724 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 11724 **API Well Number:** 608114023500 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 6593 - 11710 4292 Water Depth: Public Info Code: Y 08-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
6593 / 6593	DEF	AT first sample examined	DEF	AT	
6594 / 6594	DEF	AT cement	DEF	AT	
7260 / 7260	DEF	AT	POS	AT	5
8193 / 8193	DEF	AT cement	POS	AT	5
8220 / 8220	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	POS	AT	5
8250 / 8250	DEF	AT	DEF	AT	5
8430 / 8430	DEF	AT	POS	ΑT	5
9150 / 9150	DEF	AT	DEF	ΑT	5
9480 / 9480	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	6
9540 / 9540	DEF	AT	POS	IN	5
9900 / 9900	DEF	AT	DEF	IN	5
10020 / 10020	DEF	AT	POS	ΑT	5
10170 / 10170	DEF	AT	DEF	IN	5
10320 / 10320	DEF	AT	POS	ΑT	5
10375 / 10375	DEF	AT cement	POS	AT	5
10510 / 10510	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT	6
10555 / 10555	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	6
10570 / 10570	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	6
10585 / 10585	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	6
10660 / 10660	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	ΑT	6
10705 / 10705	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	6
10720 / 10720	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	6

GEOLOGIC

02-FEB-2011 PAGE: 631

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 644 Date of Summary: 18-JAN-1999 First Sample Examined: 6593 Source of Paleo: OPERATOR Lease Number: G11080 **Borehole MD:** 11724 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 11724 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114023500 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 6593 - 11710 4292 Water Depth: Public Info Code: Y 08-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10750 / 10750	DEF	AT	DEF IN	1 6
10810 / 10810	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF IN	1 6
11005 / 11005	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF IN	1 6
11080 / 11080	DEF	AT	DEF IN	1 5
11575 / 11575	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF IN	1 5
11710 / 11710	DEF	AT last sample examined	DEF IN	<b>J</b> 5

GEOLOGIC 02-FEB-2011

PAGE: 632

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 644 Date of Summary: 15-FEB-1999 First Sample Examined: 11390 Source of Paleo: OPERATOR Lease Number: G11080 **Borehole MD:** 12200 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 12188 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114023501 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 10170 - 12200 4292 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 13-MAR-2009 Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description			<u>Ecozone</u>
11390 / 11381	DEF AT first sample examined	POS	IN	5
11920 / 11909	DEF AT Upper Miocene (Messinian) Discoaster quinqueramus	POS	IN	5
11935 / 11924	POS AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
12115 / 12104	DEF AT	POS	IN	5
12200 / 12189	DEF AT last sample examined	POS	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 633

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 645 6590 Date of Summary: 06-DEC-1995 First Sample Examined: Lease Number: G11081 Source of Paleo: OPERATOR **Borehole MD:** 16511 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 15394 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114026000 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 6590 - 16510 4344 Water Depth: Public Info Code: Y 11-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>!</u>	<u>Ecozone</u>
6590 / 6590	DEF	AT first sample examined	DEF	IN	5
7850 / 7850	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	POS	IN	5
8075 / 8075	DEF	AT cement	POS	IN	5
8900 / 8899	DEF	AT	POS	IN	5
8960 / 8959	DEF	AT local marker foram increase	DEF	IN	5
9770 / 9769	DEF	AT cement	POS	IN	5
10130 / 10129	DEF	AT	DEF	ΑT	5
10160 / 10159	DEF	AT	DEF	ΑT	6
10190 / 10189	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	ΑT	6
10250 / 10248	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	6
10400 / 10397	DEF	AT	POS	IN	5
10700 / 10688	DEF	AT	DEF	IN	5
11045 / 11008	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	IN	5
11090 / 11048	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	IN	5
11120 /11074	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	6
11210 / 11150	DEF	AT	POS	IN	5
11600 / 11472	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	POS	IN	5
11780 / 11619	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	ΑT	6
11900 / 11715	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	6
11945 / 11751	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	6
12020 / 11810	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	6
12050 / 11833	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	6

16510 / 15393

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 634

POS AT

6

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 645 Date of Summary: 06-DEC-1995 First Sample Examined: 6590 Lease Number: G11081 Source of Paleo: OPERATOR 16511 **Borehole MD:** Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 15394 **API Well Number:** 608114026000 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 6590 - 16510 Water Depth: 4344 Public Info Code: Y 11-DEC-2009 **Ecozone Eg MMS:** Y Paleo ID: 001

MD / TVD **Paleo Top Description Ecozone** 12290 / 12017 DEF AT ----DEF AT 6 AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus 12590 / 12254 DEF AT 6 12605 / 12266 DEF AT ----DEF IN 6 12799 / 12421 DEF AT Lower Pliocene (Zanclian) Uvigerina rustica DEF IN 6 AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B" DEF IN 12800 / 12421 6 12890 / 12491 DEF AT Lower Pliocene (Zanclian) Dictyococcites antarcticus DEF IN 6 DEF AT -----POS AT 13190 / 12718 6 DEF AT -----DEF IN 5 13610 / 13053 13790 / 13197 DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra DEF IN 5 DEF AT -----POS AT 6 13880 / 13271 DEF AT -----DEF IN 5 14170 / 13512 DEF AT -----14440 / 13736 POS IN 5 POS AT Upper Miocene (Messinian) Discoaster quinqueramus POS IN 14860 / 14074 15190 / 14334 AT Upper Miocene (Messinian) Discoaster berggrenii POS IN 5 15670 / 14719 DEF AT ----DEF IN 6 DEF AT ----POS AT 6 15910 / 14910

DEF AT last sample examined

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 635

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 700 7186 Date of Summary: 13-JAN-1999 First Sample Examined: Lease Number: G15604 Source of Paleo: OPERATOR 19525 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 18701 **API Well Number:** 608115012401 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 7186 - 19525 Water Depth: 4409 Public Info Code: Y 22-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, 14145=undifferentiated Pliocene, may still be in salt, 14175-15100=mixed Plio-Pleistocene fauna and

flora

MD / TVD		Paleo Top Description		<u>E</u>	cozone
7186 / 7186	DEF	AT first sample examined	DEF	AT	
7187 / 7187	DEF	AT cement	DEF	AT	
7320 / 7320	DEF	AT salt	DEF	AT	
14144 / 14117	POS	AT base of salt	DEF	AT	
14145 / 14118	POS	IN Pliocene	DEF	AT	
14175 / 14147	DEF	IN out-of-place section	DEF	AT	
14205 / 14177	DEF	AT	POS	AT	5
15100 / 15054	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	POS	AT	5
15115 / 15068	DEF	AT	DEF	IN	5
15415 / 15349	DEF	AT	POS	AT	5
16270 / 16096	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	POS	AT	5
16360 / 16171	DEF	AT	POS	AT	5
16480 / 16271	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	POS	AT	5
16525 / 16308	POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	POS	AT	5
16690 / 16442	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	POS	AT	5
17100 / 16769	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	POS	AT	5
17400 / 17006	POS	AT Middle Miocene (Serravallian) Discoaster kugleri	POS	AT	5
18650 / 18000	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	AT	5
19100 / 18365	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	POS	AT	5
19290 / 18516	DEF	AT Upper Oligocene (Chattian) Globigerina sellii	POS	AT	5
19379 / 18586	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	POS	AT	5

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 636

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 700 Date of Summary: 13-JAN-1999 First Sample Examined: 7186

Lease Number: G15604 Source of Paleo: OPERATOR 19525 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 18701

**API Well Number:** 608115012401 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 86 **Sample Range:** 7186 - 19525 4409 Paleo Report Num: 1 of 1 Water Depth:

Public Info Code: Y 22-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD/TVD **Paleo Top Description Ecozone** DEF AT last sample examined 19380 / 18587 POS AT 5

GEOLOGIC 02-FEB-2011

PAGE: 637

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 700 Date of Summary: 13-JAN-1999 18170 First Sample Examined: Lease Number: G15604 Source of Paleo: OPERATOR **Borehole MD:** 20097 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 18934 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608115012402 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 18170 - 20015 4409 Water Depth: Public Info Code: Y 11-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Eco	ozone
18170 / 17617	DEF	AT first sample examined	DEF	AT	
18695 / 18017	DEF	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	
19235 / 18384	POS	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT	
19400 / 18488	POS	AT Upper Oligocene (Chattian) Globigerina sellii	POS	AT	5
19475 / 18536	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	POS	AT	5
20015 / 18881	DEF	AT last sample examined	POS	AT	5

GEOLOGIC 02-FEB-2011

638

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 Date of Summary: 01-DEC-2001 7560 First Sample Examined: Lease Number: G20088 Source of Paleo: OPERATOR 11519 **Borehole MD:** Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 11518 **Drilling Operator: CONOCO INC API Well Number:** 608114030500 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 7560 - 11519 4461 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7560 / 7560	DEF	AT first sample examined	DEF	AT
7561 / 7561	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
7800 / 7800	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
8280 / 8280	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
8520 / 8520	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8760 / 8760	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
9000 / 9000	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9120 / 9120	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
9240 / 9240	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
10080 / 10079	DEF	AT salt	DEF	AT
11519 / 11518	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 639

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 7560 Date of Summary: 01-MAR-2002 First Sample Examined: Lease Number: G20088 Source of Paleo: OPERATOR 11519 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 11518 **Drilling Operator: CONOCO INC API Well Number:** 608114030500 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 7560 - 11519 4461 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

<u>MD / </u>	TVD		Paleo Top Description		Ecoz	<u>zone</u>
7560 /	7560	DEF	AT first sample examined	DEF	AT	5
7561 /	7561	POS	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
7680 /	7680	POS	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
7800 /	7800	POS	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
8280 /	8280	DEF	AT	DEF	IN	5
8520 /	8520	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	6
8750 /	8750	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	6
9000 /	9000	DEF	AT	DEF	IN	5
9120 /	9120	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
9359 /	9359	POS	AT gouge	DEF	IN	5
9360 /	9360	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
9703 /	9703	DEF	AT	DEF	IN	4
10080 / 1	10079	DEF	AT salt	DEF	AT	
11400 / 1	11399	DEF	IN salt	DEF	AT	
11519 / 1	11518	DEF	AT last sample examined	DEF	AT	

GEOLOGIC 02-FEB-2011 PAGE: 640

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 Date of Summary: 01-DEC-2001 15240 First Sample Examined: Lease Number: G20088 Source of Paleo: OPERATOR 23862 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 22928 **API Well Number:** 608114030501 **Drilling Operator: CONOCO INC Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 15240 - 23862 Water Depth: 4461 Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15240 / 15238	DEF	AT first sample examined	DEF	AT
15241 / 15239	DEF	AT base of salt	DEF	AT
15242 / 15240	DEF	AT out-of-place section	DEF	AT
15330 / 15328	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
15480 / 15477	DEF	AT sample gap top	DEF	AT
15629 / 15626	DEF	AT sample gap bottom	DEF	AT
15630 / 15627	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
15870 / 15867	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
15900 / 15897	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
16080 / 16077	DEF	AT reworked material	DEF	AT
16350 / 16347	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
17130 / 17126	DEF	AT reworked material	DEF	AT
17160 / 17156	DEF	AT local marker floral increase	DEF	AT
17310 / 17306	DEF	AT reworked material	DEF	AT
17370 / 17365	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
18050 / 18022	DEF	AT reworked material	DEF	AT
18140 / 18106	DEF	AT reworked material	DEF	AT
18290 / 18245	DEF	AT local marker floral increase	DEF	AT
19010 / 18872	DEF	AT reworked material	DEF	AT
19040 / 18897	DEF	AT reworked material	DEF	AT
19100 / 18948	DEF	AT reworked material	DEF	AT
19130 / 18974	DEF	AT reworked material	DEF	AT

GEOLOGIC 02-FEB-2011

641

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 Date of Summary: 01-DEC-2001 First Sample Examined: 15240 Source of Paleo: OPERATOR Lease Number: G20088 **Borehole MD:** 23862 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 22928 **Drilling Operator: CONOCO INC API Well Number:** 608114030501 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 15240 - 23862 4461 Water Depth:

Public Info Code: Y 30-JUN-2008 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
19190 / 19024	DEF	AT reworked material	DEF	AT
19580 / 19350	DEF	AT reworked material	DEF	AT
19640 / 19400	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
19760 / 19499	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
20000 / 19697	DEF	AT local marker floral increase	DEF	AT
20330 / 19967	DEF	AT reworked material	DEF	AT
20480 / 20091	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
20960 / 20485	DEF	AT local marker floral increase	DEF	AT
21890 / 21252	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
22610 / 21853	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
22820 / 22032	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
22910 / 22110	DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
22970 / 22161	POS	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
23449 / 22571	POS	AT reworked material	DEF	AT
23450 / 22572	POS	IN Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
23862 / 22928	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 642

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 15240 Date of Summary: 01-MAR-2002 First Sample Examined: Lease Number: G20088 Source of Paleo: OPERATOR 23862 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 22928 **Drilling Operator: CONOCO INC API Well Number:** 608114030501 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 15240 - 23869 4461 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
15240 / 15238	DEF	AT first sample examined	DEF	AT	5
15241 / 15239	POS	AT base of salt	DEF	AT	5
15242 / 15240	DEF	AT reworked material	DEF	AT	5
15420 / 15417	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
15480 / 15477	DEF	AT sample gap top	POS	AT	5
15630 / 15627	DEF	AT sample gap bottom	DEF	AT	5
15780 / 15777	DEF	AT local marker foram increase	DEF	AT	6
15810 / 15807	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	6
15870 / 15867	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	6
16050 / 16047	DEF	AT pyrite	DEF	AT	6
16080 / 16077	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	6
16350 / 16347	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
16530 / 16527	DEF	AT local marker foram decrease	DEF	IN	4
16710 / 16706	DEF	AT	DEF	AT	5
17280 / 17276	DEF	AT	DEF	IN	4
17480 / 17474	DEF	AT	POS	IN	4
18080 / 18050	DEF	AT	DEF	IN	4
18260 / 18218	DEF	AT	DEF	AT	5
18380 / 18327	DEF	AT	DEF	IN	4
18560 / 18488	DEF	AT	POS	IN	4
18980 / 18846	DEF	AT	DEF	AT	5
19040 / 18897	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 643

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GC 730Date of Summary:01-MAR-2002First Sample Examined:15240Lease Number:G20088Source of Paleo:OPERATORBorehole MD:23862Well Name:001Paleo Done By:APPLIED BIOSTRATIGRAPHIXBorehole TVD:22928

 API Well Number:
 608114030501
 Drilling Operator:
 CONOCO INC
 Rkb Elevation:
 75

 Paleo Report Num:
 2 of 2
 Sample Range:
 15240 - 23869
 Water Depth:
 4461

Public Info Code: Y 30-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<b>Ecozone</b>
19220 / 19050	DEF	AT	POS	AT	Г 5
19340 / 19150	DEF	AT	DEF	ΑT	Γ 5
19490 / 19275	POS	AT local marker foram increase	DEF	ΑT	Г 5
19580 / 19350	DEF	AT local marker planktic foram increase	DEF	IN	5
19760 / 19499	DEF	AT local marker benthic foram increase	DEF	IN	5
20090 / 19771	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
20390 / 20016	DEF	AT	DEF	ΑT	Γ 4
20570 / 20165	DEF	AT	POS	AT	Γ 4
20810 / 20362	DEF	AT	DEF	AT	Γ 5
20870 / 20411	DEF	AT pyrite	DEF	ΑT	Γ 5
20990 / 20510	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	Γ 5
21020 / 20535	DEF	AT local marker foram increase	DEF	ΑT	Γ 6
21170 / 20658	DEF	AT	DEF	ΑT	Γ 4
21410 / 20856	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	Γ 4
21470 / 20905	DEF	AT	DEF	ΑT	Γ 5
21590 / 21004	DEF	AT	POS	AT	Γ 4
21770 / 21153	DEF	AT	DEF	ΑT	Γ 5
21860 / 21227	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	IN	6
21890 / 21252	POS	IN Upper Miocene (Messinian) Globorotalia juanai	DEF	IN	6
21950 / 21302	DEF	AT	DEF	ΑT	Γ 5
22370 / 21650	DEF	AT	DEF	IN	4
22610 / 21853	DEF	AT	DEF	ΑT	Γ 5
23030 / 22212	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	Γ 5
23090 / 22264	DEF	AT	DEF	IN	4

GEOLOGIC 02-FEB-2011

Paleo ID:

PAGE: 644

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 Date of Summary: 01-MAR-2002 First Sample Examined: 15240 Source of Paleo: OPERATOR Lease Number: G20088 **Borehole MD:** 23862 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 22928 **Drilling Operator: CONOCO INC API Well Number:** 608114030501 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 15240 - 23869 4461 Water Depth:

Public Info Code: Y 30-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
23450 / 22572	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
23690 / 22779	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
23720 / 22805	POS	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	IN	4
23750 / 22831	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
23825 / 22896	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
23869 /	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 645

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 23870 Date of Summary: 01-MAR-2002 First Sample Examined: Lease Number: G20088 Source of Paleo: OPERATOR **Borehole MD:** 28645 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 27167 **Drilling Operator: CONOCO INC API Well Number:** 608114030502 **Rkb Elevation:** 75 Paleo Report Num: 1 of 1 **Sample Range:** 23870 - 28630 4461 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
23870 / 22930	DEF	AT first sample examined	DEF	IN	4
23930 / 22980	POS	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	IN	4
23980 / 23022	DEF	AT Bathysiphon fauna	DEF	IN	4
24160 / 23171	DEF	AT	DEF	AT	4
24430 / 23395	DEF	AT	DEF	IN	4
24580 / 23521	POS	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	4
24700 / 23623	DEF	AT	DEF	AT	4
25120 / 23986	DEF	AT local marker foram increase	DEF	AT	5
25180 / 24039	DEF	AT transported shelf fauna	DEF	AT	5
25210 / 24065	DEF	AT	DEF	AT	4
25720 / 24514	DEF	AT Bathysiphon fauna	DEF	AT	4
25810 / 24593	POS	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	4
26050 / 24807	DEF	AT reworked material	DEF	AT	4
26230 / 24969	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
26349 / 25076	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
26350 / 25077	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	4
26410 / 25130	DEF	AT transported shelf fauna	DEF	IN	4
26589 / 25291	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
26590 / 25292	DEF	AT local marker planktic foram increase	DEF	IN	4
26770 / 25452	DEF	AT	DEF	AT	4
27550 / 26152	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
27639 / 26233	DEF	AT condensed section	DEF	AT	4

GEOLOGIC 02-FEB-2011

646

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 730 Date of Summary: 01-MAR-2002 First Sample Examined: 23870 Source of Paleo: OPERATOR Lease Number: G20088 **Borehole MD:** 28645 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 27167 **Drilling Operator: CONOCO INC API Well Number:** 608114030502 **Rkb Elevation:** 75 Paleo Report Num: 1 of 1 **Sample Range:** 23870 - 28630 4461 Water Depth:

Public Info Code: Y 30-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco <sub>2</sub>	zone
27640 / 26234	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
27790 / 26371	DEF	AT Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	AT	4
27940 / 26508	DEF	AT local marker planktic foram increase	DEF	AT	5
28120 / 26674	DEF	AT	DEF	AT	4
28330 / 26870	DEF	AT transported shelf fauna	DEF	AT	4
28390 / 26926	DEF	AT transported shelf fauna	DEF	AT	4
28630 / 27153	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

647

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 737 Date of Summary: 03-OCT-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G21224 **Borehole MD:** 11940 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 11924 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608114028200 **Rkb Elevation:** 63 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 4415 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

ME	D/TVD_		Paleo Top Description		<u>Ecozone</u>
6800	/ 6800	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9500	/ 9492	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9620	/ 9611	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT
9740	/ 9730	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9799	/ 9789	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9800	/ 9790	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT
10039	/10028	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10040	/10029	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
10099	/10088	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
10100	/10089	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT
10151	/10140	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
10152	1/10141	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT
10160	/10149	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT

GEOLOGIC 02-FEB-2011

648

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 9300 Date of Summary: 01-JUL-2000 First Sample Examined: Lease Number: G15607 Source of Paleo: OPERATOR 17194 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16972 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027700 **Rkb Elevation:** 84 **Sample Range:** 9300 - 17194 6675 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 23-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 17080=Discoaster petaliformis acme, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9300 / 9300	DEF	AT first sample examined	DEF	AT
9301 / 9301	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
9420 / 9420	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa omega	DEF	AT
9479 / 9479	DEF	AT condensed section	DEF	AT
9480 / 9480	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa parallela	DEF	AT
9570 / 9570	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
9660 / 9660	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
10530 / 10530	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
12960 / 12959	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
12961 / 12960	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
12990 / 12989	DEF	AT reworked material	DEF	AT
13050 / 13049	DEF	AT reworked material	DEF	AT
13230 / 13229	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa (increase)	DEF	AT
13350 / 13349	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
13500 / 13499	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
13501 / 13500	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
14220 / 14200	DEF	AT reworked material	DEF	AT
14250 / 14228	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
14280 / 14256	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
14460 / 14423	POS	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
14789 / 14728	POS	AT unconformity	DEF	AT
14790 / 14729	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT

**GEOLOGIC** 02-FEB-2011 PAGE: 649

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 Date of Summary: 01-JUL-2000 First Sample Examined: 9300 Lease Number: G15607 Source of Paleo: OPERATOR **Borehole MD:** 17194 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 16972 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027700 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 9300 - 17194 6675 Water Depth: Paleo ID: 002

Public Info Code: Y 23-JUL-2010 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14820 / 14756	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
14879 / 14810	POS	AT unconformity	DEF	AT
14880 / 14811	DEF	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
15029 / 14948	POS	AT unconformity	DEF	AT
15030 / 14949	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
15031 / 14950	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	AT
15032 / 14951	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15570 / 15445	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
15571 / 15446	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
15572 / 15447	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
15573 / 15448	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
15574 / 15449	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
15780 / 15640	POS	IN Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
15781 / 15641	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
16290 / 16118	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
16800 / 16599	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
16801 / 16600	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
17080 / 16865	DEF	AT local marker floral increase	DEF	AT
17140 / 16921	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
17170 / 16950	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

650

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 9300 Date of Summary: 01-AUG-2000 First Sample Examined: Lease Number: G15607 Source of Paleo: OPERATOR **Borehole MD:** 17194 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16972 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027700 **Rkb Elevation:** 84 **Sample Range:** 9300 - 17194 Paleo Report Num: 2 of 2 6675 Water Depth: Public Info Code: Y 23-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ec	ozone
9300 / 9300	DEF	AT first sample examined	DEF	AT	4
9330 / 9330	POS	IN Holocene Globorotalia inflata	DEF	AT	4
9570 / 9570	DEF	AT local marker foram increase	DEF	AT	4
9660 / 9660	DEF	AT local marker planktic foram increase	DEF	IN	5
9780 / 9780	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
9900 / 9900	DEF	AT	DEF	AT	4
10530 / 10530	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
10980 / 10980	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
11220 / 11220	DEF	AT local marker foram decrease	DEF	AT	4
12030 / 12030	DEF	AT	POS	AT	4
12510 / 12510	POS	AT Lower Pleistocene (Calabrian) Globorotalia incisa	POS	AT	4
12930 / 12929	DEF	AT local marker deep water fauna	DEF	IN	4
13050 / 13049	DEF	AT reworked material	DEF	IN	4
13830 / 13826	DEF	AT local marker benthic foram increase	DEF	AT	5
14010 / 14000	DEF	AT	DEF	IN	4
14250 / 14228	DEF	AT	POS	IN	4
14430 / 14395	DEF	AT	DEF	AT	4
15030 / 14949	DEF	AT reworked material	DEF	IN	4
15210 / 15114	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	4
15270 / 15169	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	4
15390 / 15279	DEF	AT reworked material	DEF	IN	4
15570 / 15445	DEF	AT local marker planktic foram increase	DEF	IN	4

GEOLOGIC 02-FEB-2011

651

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 Date of Summary: 01-AUG-2000 First Sample Examined: 9300 Lease Number: G15607 Source of Paleo: OPERATOR **Borehole MD:** 17194 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 16972 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027700 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 9300 - 17194 6675 Water Depth:

Public Info Code: Y 23-JUL-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ecozone	<u>)</u>
15690 / 15557	DEF	AT	POS	IN 4	
15810 / 15668	DEF	AT	DEF	AT 4	
15870 / 15724	DEF	AT reworked material	DEF	AT 4	
16139 / 15976	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT 5	
16140 / 15977	POS	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT 5	
16200 / 16033	DEF	AT	DEF	AT 4	
16500 / 16316	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT 4	
16780 / 16580	DEF	AT local marker foram increase	DEF	AT 4	
17040 / 16827	DEF	AT limestone	DEF	AT 4	
17194 / 16972	DEF	AT last sample examined	DEF	AT 4	

GEOLOGIC 02-FEB-2011 PAGE: 652

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 16960 Date of Summary: 01-AUG-2000 First Sample Examined: Lease Number: G15607 Source of Paleo: OPERATOR 18448 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18150 **API Well Number:** 608114027701 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **Rkb Elevation:** 84 **Sample Range:** 15880 - 18445 Paleo Report Num: 1 of 2 6675 Water Depth: Public Info Code: Y 20-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
16960 / 16755	DEF	AT first sample examined	DEF	AT
16961 / 16756	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
17080 / 16868	DEF	AT local marker floral increase	DEF	AT
17170 / 16952	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
17320 / 17093	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
17440 / 17205	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
17720 / 17466	DEF	AT local marker floral increase	DEF	AT
17870 / 17606	DEF	AT Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	AT
18070 / 17794	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF	AT
18110 / 17831	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
18190 / 17907	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
18260 / 17973	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
18290 / 18001	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
18291 / 18002	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
18410 / 18114	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus (increase)	DEF	AT
18440 / 18142	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 653

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 17000 Date of Summary: 01-AUG-2000 First Sample Examined: Lease Number: G15607 Source of Paleo: OPERATOR 18448 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18150 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027701 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 15880 - 18445 6675 Water Depth: Public Info Code: Y 20-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: 17900=Glomospira charoides pulse, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
17000 / 16793	DEF	AT first sample examined	DEF	AT	4
17001 / 16794	POS	IN Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	IN	4
17050 / 16840	DEF	AT limestone	DEF	IN	4
17199 / 16980	POS	IN Middle Miocene (Serravallian) Cibicides barnetti	DEF	AT	4
17200 / 16981	POS	IN Middle Miocene (Serravallian) Cibicides opima	DEF	AT	4
17230 / 17009	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	4
17510 / 17270	DEF	AT local marker foram decrease	POS	AT	4
17780 / 17522	DEF	AT Bathysiphon fauna	DEF	AT	4
17900 / 17634	DEF	AT local marker benthic foram increase	DEF	AT	4
18040 / 17766	POS	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT	4
18260 / 17973	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	4
18445 / 18147	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

654

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 Date of Summary: 01-OCT-2000 First Sample Examined: 11420 Lease Number: G15607 Source of Paleo: OPERATOR **Borehole MD:** 20970 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 19367 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027702 **Rkb Elevation:** 84 Paleo Report Num: 1 of 1 **Sample Range:** 11420 - 20970 6675 Water Depth: Public Info Code: Y 04-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11420 / 11420	DEF	AT first sample examined	DEF	AT
11780 / 11780	DEF	IN Middle Pleistocene (Ionian) Gephyrocapsa margerelli	DEF	AT
13040 / 12952	DEF	IN Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
13160 / 13051	DEF	AT reworked material	DEF	AT
13670 / 13463	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
13760 / 13536	DEF	AT reworked material	DEF	AT
13820 / 13585	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
14660 / 14265	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
14810 / 14387	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
14811 / 14388	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
14812 / 14389	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
15200 / 14706	POS	AT unconformity	DEF	AT
15230 / 14730	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
15231 / 14731	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
15290 / 14778	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
15320 / 14802	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
15379 / 14850	POS	AT unconformity	DEF	AT
15380 / 14851	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
15470 / 14923	DEF	IN Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
15920 / 15284	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16250 / 15551	DEF	IN Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	AT
16610 / 15841	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT

**GEOLOGIC** 02-FEB-2011

655

001

PAGE:

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 743 Date of Summary: 01-OCT-2000 First Sample Examined: 11420 Lease Number: G15607 Source of Paleo: OPERATOR **Borehole MD:** 20970 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 19367 84

Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114027702 **Rkb Elevation:** 6675

Paleo Report Num: 1 of 1 **Sample Range:** 11420 - 20970

Public Info Code: Y 04-NOV-2010 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
16611 / 15842	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
16612 / 15843	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
16613 / 15844	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
16850 / 16036	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
17990 / 16952	DEF	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
18480 / 17348	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
18900 / 17689	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
19460 / 18142	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
19880 / 18482	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
20150 / 18703	DEF	AT Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	AT
20570 / 19046	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF	AT
20780 / 19215	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
20900 / 19311	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
20901 / 19312	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT
20930 / 19335	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
20931 / 19336	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus (increase)	DEF	AT
20932 / 19337	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
20960 / 19359	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 656

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 782 7060 Date of Summary: 15-JAN-2000 First Sample Examined: Lease Number: G15610 Source of Paleo: OPERATOR 20268 **Borehole MD:** Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 20256 **API Well Number:** 608114026100 **Drilling Operator:** BP AMERICA PRODUCTION COMPANY **Rkb Elevation:** 46 **Sample Range:** 7060 - 20268 Paleo Report Num: 1 of 1 Water Depth: 4423 Public Info Code: Y 20-JAN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Mad Dog Prospect, company-integrated foram and nanno report, 16870=rare Gyroidina scalata

MD / TVD		Paleo Top Description		Eco	ozone
7060 / 7060	DEF	AT first sample examined	POS	AT	5
7420 / 7420	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	POS	AT	5
8080 / 8080	DEF	AT	POS	AT	5
8379 / 8379	POS	AT reworked material	POS	AT	5
8380 / 8380	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	POS	AT	5
8980 / 8979	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	POS	AT	5
9039 / 9038	DEF	AT reworked material	POS	AT	5
9040 / 9039	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	POS	AT	5
9160 / 9159	DEF	AT	DEF	AT	5
9220 / 9219	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
9850 / 9849	DEF	AT	DEF	AT	6
10090 / 10089	DEF	AT	POS	AT	6
10420 / 10419	DEF	AT salt	POS	AT	6
14650 / 14647	DEF	AT sample gap top	POS	AT	6
15205 / 15202	DEF	AT sample gap bottom	DEF	AT	6
15360 / 15357	DEF	AT base of salt	DEF	AT	6
15403 / 15400	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	6
15410 / 15407	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	6
15460 / 15457	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	6
15550 / 15547	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT	6
15775 / 15772	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
15850 / 15847	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	IN	5

GEOLOGIC 02-FEB-2011

657

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 782 Date of Summary: 15-JAN-2000 First Sample Examined: 7060 Source of Paleo: OPERATOR Lease Number: G15610 **Borehole MD:** 20268 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 20256 **Drilling Operator:** BP AMERICA PRODUCTION COMPANY **API Well Number:** 608114026100 **Rkb Elevation:** 46

> API Well Number: 608114026100 Drilling Operator: BP AMERICA PRODUCTION COMPANY Rkb Elevation: 46
> Paleo Report Num: 1 of 1 Sample Range: 7060 - 20268 Water Depth: 4423

Public Info Code: Y 20-JAN-2010 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description			<u>Ecozone</u>
16630 / 16627 DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	IN	5
16675 / 16672 DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	IN	5
16705 / 16702 DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	IN	5
16816 / 16812 DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	5
16870 / 16866 POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	IN	5
16890 / 16886 DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	IN	5
17265 / 17261 DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	IN	5
17760 / 17756 POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	5
17761 / 17757 DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	IN	5
18360 / 18355 DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	IN	5
18780 / 18773 DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	IN	5
18781 / 18774 POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	IN	5
18840 / 18833 POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5
19110 / 19101 DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	IN	5
19500 / 19490 DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	IN	5
19920 / 19909 DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	IN	5
19921 / 19910 DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	IN	5
19979 / 19968 DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	IN	5
20268 / 20256 DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 658

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 782 Date of Summary: 03-FEB-2000 18150 First Sample Examined: Lease Number: G15610 Source of Paleo: OPERATOR 21560 **Borehole MD:** Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 20974 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114026102 **Rkb Elevation:** 46 **Sample Range:** 18150 - 21560 Paleo Report Num: 1 of 1 Water Depth: 4423 Public Info Code: Y 27-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Mad Dog Prospect, company-integrated foram and nanno report, no paleo received for sidetrack 1

MD / TVD		Paleo Top Description		Ecoz	<u>zone</u>
18150 / 18135	DEF	AT first sample examined	POS	IN	5
18510 / 18475	DEF	AT	POS	IN	5
18570 / 18530	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	POS	IN	5
18810 / 18744	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	IN	5
19410 / 19199	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
19440 / 19222	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	6
19950 / 19625	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	6
19980 / 19649	DEF	AT	POS	IN	5
20790 / 20315	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	POS	IN	5
20880 / 20392	DEF	AT	DEF	AT	6
20970 / 20469	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT	6
21150 / 20623	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	6
21180 / 20648	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	6
21240 /20700	DEF	AT	POS	AT	6
21300 / 20751	POS	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	POS	AT	6
21510 / 20931	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	POS	AT	6
21560 / 20974	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 659

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 783 15850 Date of Summary: 01-JUN-2001 First Sample Examined: Lease Number: G15610 Source of Paleo: OPERATOR **Borehole MD:** 22427 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 20763 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114028501 **Rkb Elevation:** 82 **Sample Range:** 15850 - 22420 Paleo Report Num: 1 of 1 4317 Water Depth: Public Info Code: Y 31-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
15850 / 15832	DEF	AT first sample examined	POS	IN	5
16150 / 16131	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	POS	IN	5
16210 / 16191	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	POS	IN	5
16480 / 16457	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	POS	IN	5
16870 / 16828	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	POS	IN	5
17260 / 17172	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	POS	IN	5
19600 / 18780	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	IN	5
20080 / 19110	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	IN	5
20110 / 19130	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	POS	IN	5
21190 / 19872	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	IN	5
21730 / 20253	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	POS	IN	5
21760 / 20275	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	POS	IN	5
22419 / 20757	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	IN	5
22420 / 20758	DEF	AT last sample examined	POS	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 660

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 783 7035 Date of Summary: 01-JUN-2001 First Sample Examined: Lease Number: G15611 Source of Paleo: OPERATOR **Borehole MD:** 21810 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 21788 **API Well Number: 608114028500 Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 82 4317 Paleo Report Num: 1 of 1 **Sample Range:** 7035 - 21810 Water Depth: Public Info Code: Y 01-APR-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
7035 / 7035	DEF	AT first sample examined	DEF	AT	
7036 / 7036	DEF	AT reworked material	DEF	AT	
7990 / 7989	DEF	AT salt	DEF	AT	
15079 / 15064	DEF	AT base of salt	DEF	AT	
15080 / 15065	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	POS	AT	5
15490 / 15472	DEF	AT	DEF	AT	4
15760 / 15742	DEF	AT	POS	AT	4
15910 / 15891	DEF	AT	DEF	AT	5
16030 / 16011	DEF	AT	DEF	AT	4
16120 / 16101	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	4
16210 / 16191	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
16240 / 16221	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	POS	AT	4
16390 / 16371	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	POS	AT	4
16930 / 16911	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	POS	AT	4
17200 / 17181	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	POS	AT	4
17410 / 17391	DEF	AT	DEF	AT	4
18310 / 18291	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	POS	AT	4
18790 / 18771	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
18820 / 18801	DEF	AT	DEF	AT	4
19150 / 19130	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	4
19570 / 19550	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	AT	4
19660 / 19640	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	POS	AT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 661

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 783 Date of Summary: 01-JUN-2001 First Sample Examined: 7035 Source of Paleo: OPERATOR Lease Number: G15611 **Borehole MD:** 21810 21788 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608114028500 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 7035 - 21810 4317 Water Depth:

Paleo ID:

Public Info Code: Y 01-APR-2009 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		Ecozon	<u>ie</u>
19720 / 19700	DEF	AT	DEF /	AT 5	
19750 / 19730	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF /	AT 5	
19780 / 19760	DEF	AT	DEF /	AT 4	
20440 / 20419	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF /	AT 4	
20860 / 20839	DEF	IN Middle Miocene (Langhian) Robulus "L" / 43	DEF /	AT 4	
21040 / 21019	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF /	AT 4	
21100 / 21079	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF /	AT 4	
21700 / 21678	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF /	AT 4	
21760 / 21738	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF /	AT 4	
21810 / 21788	DEF	AT last sample examined	DEF /	AT 4	

GEOLOGIC 02-FEB-2011

662

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 Date of Summary: 07-OCT-2003 First Sample Examined: 14066 Lease Number: G16808 Source of Paleo: OPERATOR 14660 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 14658 **API Well Number:** 608114038400 **Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation:** 88 Paleo Report Num: 1 of 1 **Sample Range:** 14066 - 14610 Water Depth: 4129 Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Puma Prospect, company-integrated foram and nanno report, from 14160 to 14370, microfossils indicate redeposited Eocene to Lower middle Miocene, complicating interpretations, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<b>Ecozone</b>
14066 / 14064	DEF	AT first sample examined	DE	F A	·Τ
14067 / 14065	DEF	IN Upper (Late) Paleocene	DE	F A	·Τ
14158 / 14156	DEF	AT reworked material	DE	F A	·Τ
14159 / 14157	POS	AT Miocene	DE	F A	·Τ
14160 / 14158	DEF	AT local marker foram increase	DE	F A	·Τ
14190 / 14188	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DE	F A	·Τ
14310 / 14308	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DE	F A	ιT
14370 / 14368	DEF	AT reworked material	DE	F A	·Τ
14488 / 14486	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DE	F A	ιT
14489 / 14487	DEF	AT Arenaceous fauna (local marker)	DE	F A	ιT
14490 / 14488	DEF	AT local marker planktic foram increase	DE	F A	ιT
14520 / 14518	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DE	F A	ιT
14610 / 14608	DEF	AT last sample examined	DE	F A	·Τ

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

663

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 14060 Date of Summary: 06-NOV-2003 First Sample Examined: Lease Number: G16808 Source of Paleo: OPERATOR 19034 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 19022 **API Well Number:** 608114038402 **Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation:** 88 **Sample Range:** 14060 - 19035 Paleo Report Num: 1 of 1 Water Depth: 4129 Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Puma Prospect, company-integrated foram and nanno report, foram and nannofossil species abundance and diversity tables available, see report for

MD / TVD		Paleo Top Description		<u>Ecozone</u>
14060 / 14057	DEF	AT first sample examined	DEF	AT
14061 / 14058	DEF	AT out-of-place section	DEF	AT
14180 / 14176	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
14330 / 14325	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
14570 / 14564	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT
14599 / 14593	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
14600 / 14594	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
15110 / 15103	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
16040 / 16032	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT
16400 / 16392	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
17300 / 17292	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
17301 / 17293	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
18020 / 18011	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT
18170 / 18161	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
18348 / 18338	POS	AT reworked material	DEF	AT
18349 / 18339	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
18350 / 18340	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT
18620 / 18610	DEF	AT Middle Miocene (Langhian) Discoaster druggi	DEF	AT
18650 / 18640	POS	IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
18709 / 18699	DEF	AT reworked material	DEF	AT
18710 / 18700	DEF	IN Lower Miocene (Burdigalian) Triquetrorhabdulus challengeri	DEF	AT

GEOLOGIC 02-FEB-2011

664

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 Date of Summary: 06-NOV-2003 First Sample Examined: 14060 Source of Paleo: OPERATOR Lease Number: G16808 **Borehole MD:** 19034 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 19022 **Drilling Operator:** BP EXPLORATION & PRODUCTION INC **API Well Number:** 608114038402 **Rkb Elevation:** 88 Paleo Report Num: 1 of 1 **Sample Range:** 14060 - 19035 4129 Water Depth: Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
18740 / 18730	DEF AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF AT
18741 / 18731	DEF AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF AT
18830 / 18819	DEF AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF AT
18860 / 18849	DEF AT local marker benthic foram increase	DEF AT
18890 / 18879	DEF AT Upper Oligocene (Chattian) Globigerina sellii	DEF AT
18920 / 18909	DEF AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF AT
19035 /	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

665

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 15010 Date of Summary: 18-NOV-2003 First Sample Examined: Lease Number: G16808 Source of Paleo: OPERATOR 18677 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 18491 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 608114038403 **Rkb Elevation:** 88 **Sample Range:** 15010 - 18676 Paleo Report Num: 1 of 1 4129 Water Depth: Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram and nannofossil species abundance and diversity tables available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
15010 / 14990	DEF	AT first sample examined	DEF	AT
15011 / 14991	DEF	AT reworked material	DEF	AT
15220 / 15191	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
16000 / 15940	DEF	AT reworked material	DEF	AT
17019 / 16912	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
17020 / 16913	DEF	AT local marker planktic foram increase	DEF	AT
18110 / 17943	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
18430 / 18250	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT
18530 / 18346	DEF	AT local marker planktic foram increase	DEF	AT
18640 / 18451	DEF	AT Middle Miocene (Langhian) Discoaster druggi	DEF	AT
18670 / 18480	POS	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
18671 / 18481	POS	AT Lower Miocene (Aquitanian) Discoaster saundersi	DEF	AT
18672 / 18482	POS	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT
18676 / 18486	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 666

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 Date of Summary: 27-DEC-2003 14530 First Sample Examined: Lease Number: G16808 Source of Paleo: OPERATOR 20044 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 19766 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 608114038404 **Rkb Elevation:** 88 **Sample Range:** 14530 - 20044 Paleo Report Num: 1 of 1 Water Depth: 4129 Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram and nannofossil species abundance and diversity tables available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14530 / 14524	DEF	AT first sample examined	DEF	AT
14531 / 14525	DEF	IN Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
14590 / 14584	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT
14710 / 14703	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
15872 / 15853	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT
16090 / 16065	DEF	AT reworked material	DEF	AT
16540 / 16483	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
17740 / 17542	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
18369 / 18139	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
18370 / 18140	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT
18880 / 18620	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
18909 / 18648	DEF	AT reworked material	DEF	AT
18910 / 18649	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT
19330 / 19057	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
19360 / 19087	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
19750 / 19473	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus challengeri	DEF	AT
19900 / 19623	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
19960 / 19683	POS	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT
19989 / 19712	DEF	AT local marker floral increase	DEF	AT
19990 / 19713	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT
20020 / 19743	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	AT
20044 / 19767	DEF	AT last sample examined	DEF	AT

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 667

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 Date of Summary: 10-FEB-2009 17670 First Sample Examined: Lease Number: G16808 Source of Paleo: OPERATOR **Borehole MD:** 23200 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 23165 **API Well Number: 608114052500 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation:** 75 Paleo Report Num: 1 of 1 **Sample Range:** 17670 - 23200 4216 Water Depth: Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Puma 4 Prospect, company-integrated foram and nanno report, foram and nannofossil species abundance and diversity tables available, see report for

details

Paleo Ton Description

WID / I VD		Paleo Top Description		Ecozone
17670 / 17639	DEF	AT first sample examined	DEF	AT
17671 / 17640	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
17672 / 17641	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
17750 / 17719	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
17780 / 17749	DEF	AT local marker floral decrease	DEF	AT
17800 / 17769	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
17810 / 17779	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica "B"	DEF	AT
17820 / 17789	DEF	AT Lower Pliocene (Zanclian) Discoaster quintatus	DEF	AT
17899 / 17868	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
17900 / 17869	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
17980 / 17949	DEF	AT reworked material	DEF	AT
18010 / 17979	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
18280 / 18249	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
18340 / 18309	DEF	AT local marker floral increase	DEF	AT
18460 / 18429	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
18520 / 18489	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
18740 / 18709	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
18780 / 18749	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
18960 / 18929	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
19110 / 19079	POS	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
19330 / 19299	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT

GEOLOGIC 02-FEB-2011

668

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GC 823Date of Summary: 10-FEB-2009First Sample Examined: 17670Lease Number: G16808Source of Paleo: OPERATORBorehole MD: 23200Well Name: 002Paleo Done By: OPERATORBorehole TVD: 23165

API Well Number: 608114052500 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 75

Paleo Report Num: 1 of 1 Sample Range: 17670 - 23200 Water Depth: 4216

Public Info Code: Y 29-JUL-2009 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
19440 / 19409	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
19500 / 19469	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
19558 / 19527	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
19559 / 19528	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT
19560 / 19529	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT
19650 / 19619	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT
19710 / 19679	POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT
19948 / 19917	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT
19949 / 19918	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
19950 / 19919	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
20010 / 19979	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT
20369 / 20338	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
20370 / 20339	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT
20460 / 20429	DEF	AT local marker foram decrease	DEF	AT
20850 / 20819	DEF	AT local marker floral increase	DEF	AT
20939 / 20908	DEF	AT Bathysiphon fauna	DEF	AT
20940 / 20909	DEF	AT local marker planktic foram increase	DEF	AT
21030 / 20999	DEF	AT reworked material	DEF	AT
21060 / 21029	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	AT
21210 / 21178	DEF	AT local marker floral increase	DEF	AT
21540 / 21508	DEF	AT Bathysiphon fauna	DEF	AT
21780 / 21748	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21960 / 21928	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
22230 / 22198	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT

GEOLOGIC 02-FEB-2011

669

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 Date of Summary: 10-FEB-2009 First Sample Examined: 17670 Source of Paleo: OPERATOR Lease Number: G16808 **Borehole MD:** 23200 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 23165 **Drilling Operator:** BP EXPLORATION & PRODUCTION INC **API Well Number:** 608114052500 **Rkb Elevation:** 75 Paleo Report Num: 1 of 1 **Sample Range:** 17670 - 23200 4216 Water Depth:

> Public Info Code: Y 29-JUL-2009 Ecozone Eq MMS: Paleo ID: 001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
22380 / 22347	DEF AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF AT
22560 / 22527	DEF AT Middle Miocene (Langhian) Globigerinatella insueta	DEF AT
22590 / 22557	DEF AT Middle Miocene (Langhian) Discoaster calculosus	DEF AT
22620 / 22587	DEF AT reworked material	DEF AT
22768 / 22735	DEF AT Bathysiphon fauna	DEF AT
22769 / 22736	DEF AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF AT
22770 / 22737	DEF AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF AT
23049 / 23015	DEF AT local marker floral increase	DEF AT
23050 / 23016	DEF AT local marker planktic foram increase	DEF AT
23200 / 23165	DEF AT last sample examined	DEF AT

MD / TVD

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 670

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 19310 Date of Summary: 16-JUN-2009 First Sample Examined: Lease Number: G16808 Source of Paleo: OPERATOR 23529 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 22562 **API Well Number:** 608114052501 **Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation:** 75 **Sample Range:** 19310 - 23529 4222 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Puma 4 Prospect, company-integrated foram and nanno report, foram and nannofossil species abundance and diversity tables available, see report for

details

Paleo Top Description

		raied top description		ECOZOTIE
19310 / 19279	DEF	AT first sample examined	DEF	AT
19400 / 19369	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
19490 / 19459	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
19550 / 19518	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
19700 / 19666	DEF	AT local marker planktic foram increase	DEF	AT
19790 / 19754	DEF	AT local marker floral increase	DEF	AT
19820 / 19783	DEF	AT local marker planktic foram increase	DEF	AT
19910 / 19869	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT
19939 / 19896	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT
19940 / 19897	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
20240 / 20169	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	AT
20270 / 20195	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT
20450 / 20343	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT
20510 / 20391	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	AT
20540 / 20414	DEF	AT Bathysiphon fauna	DEF	AT
20570 / 20437	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT
20600 / 20460	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT
20630 / 20483	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT
20660 / 20505	DEF	AT reworked material	DEF	AT
20930 / 20705	DEF	AT local marker floral increase	DEF	AT
21200 / 20903	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 671

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GC823Date of Summary:16-JUN-2009First Sample Examined:19310Lease Number:G16808Source of Paleo:OPERATORBorehole MD:23529Well Name:002Paleo Done By:OPERATORBorehole TVD:22562

API Well Number: 608114052501 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 75

Paleo Report Num: 1 of 1 Sample Range: 19310 - 23529 Water Depth: 4222

Public Info Code: Y 29-JUL-2009 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
21799 / 21338	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
21800 / 21339	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
21920 / 21425	DEF	AT Bathysiphon fauna	DEF	AT
22130 / 21575	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
22220 / 21638	DEF	AT Bathysiphon fauna	DEF	AT
22609 / 21913	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT
22610 / 21913	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT
22699 / 21976	DEF	AT Bathysiphon fauna	DEF	AT
22700 / 21977	DEF	AT local marker planktic foram increase	DEF	AT
22759 / 22018	DEF	AT Bathysiphon fauna	DEF	AT
22760 / 22019	DEF	AT Middle Miocene (Langhian) Cibicides 38	DEF	AT
22910 / 22124	DEF	AT local marker floral increase	DEF	AT
22969 / 22166	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
22970 / 22166	DEF	AT local marker planktic foram increase	DEF	AT
23120 / 22272	DEF	AT local marker floral decrease	DEF	AT
23239 / 22357	DEF	AT Bathysiphon fauna	DEF	AT
23240 / 22357	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
23266 / 22376	DEF	AT Bathysiphon fauna	DEF	AT
23267 / 22376	DEF	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	AT
23268 / 22377	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT
23269 / 22378	DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT
23270 / 22378	DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT
23330 / 22421	DEF	AT Lower Miocene (Aquitanian) Sphenolithus conicus	DEF	AT
23386 / 22460	DEF	AT Bathysiphon fauna	DEF	AT

GEOLOGIC 02-FEB-2011

672

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 823 Date of Summary: 16-JUN-2009 First Sample Examined: 19310 Source of Paleo: OPERATOR Lease Number: G16808 **Borehole MD:** 23529 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 22562 **Drilling Operator:** BP EXPLORATION & PRODUCTION INC **API Well Number:** 608114052501 **Rkb Elevation:** 75 Paleo Report Num: 1 of 1 **Sample Range:** 19310 - 23529 4222 Water Depth: Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ecozone</u>
23387 / 22461	DEF	AT Lower Miocene (Aquitanian) Sphenolithus conicus	DEF	AT
23388 / 22462	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
23389 / 22463	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT
23390 / 22463	DEF	AT Upper Oligocene (Chattian) Globorotalia opima nana	DEF	AT
23420 / 22485	DEF	AT local marker planktic foram increase	DEF	AT
23450 / 22506	DEF	AT Bathysiphon fauna	DEF	AT
23529 / 22562	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 673

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 826 9120 Date of Summary: 25-JUN-1998 First Sample Examined: Lease Number: G09982 Source of Paleo: OPERATOR 19010 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17584 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 608115012800 **Rkb Elevation:** 46 Paleo Report Num: 1 of 1 **Sample Range:** 9120 - 18960 6734 Water Depth: Public Info Code: Y 15-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<b>Ecozone</b>
9120 / 9120	DEF	AT first sample examined	POS	IN	4
9300 / 9300	DEF	AT	DEF	AT	4
9660 / 9660	DEF	AT transported outer shelf facies	POS	AT	4
9780 / 9780	DEF	AT	DEF	ΑT	4
9990 / 9990	DEF	AT transported outer shelf facies	POS	ΑT	4
10080 / 10080	DEF	AT local marker planktic foram increase	DEF	ΑT	4
11460 / 11460	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	POS	ΑT	4
11520 / 11520	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	ΑT	4
12300 / 12277	DEF	AT	DEF	ΑT	4
12450 / 12414	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	4
13020 / 12893	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	ΑT	4
16110 / 15304	DEF	AT	DEF	ΑT	4
16290 / 15447	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	4
16320 / 15471	DEF	AT	DEF	IN	4
16740 / 15799	DEF	AT	DEF	ΑT	4
16830 / 15869	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	ΑT	4
17430 / 16336	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	4
17910 / 16708	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	ΑT	4
18150 / 16894	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	ΑT	4
18270 / 16986	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	ΑT	4
18930 / 17517	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 674

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 826 Date of Summary: 01-DEC-1998 11000 First Sample Examined: Lease Number: G09982 Source of Paleo: OPERATOR **Borehole MD:** 22400 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 20794 **Drilling Operator: AMOCO CORPORATION API Well Number:** 608115012801 **Rkb Elevation:** 46 Paleo Report Num: 1 of 1 **Sample Range:** 11000 - 22400 6734 Water Depth: Public Info Code: Y 24-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Eco	zone
11000 / 11000	DEF	AT first sample examined	POS	AT	4
11660 / 11656	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	AT	4
12170 / 12141	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	POS	AT	4
15320 / 14695	DEF	AT cement	POS	AT	4
16219 / 15409	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	POS	AT	4
16220 / 15409	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	POS	AT	4
16670 / 15765	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	4
16730 / 15812	DEF	AT	DEF	IN	4
16790 / 15859	DEF	AT	POS	AT	4
17300 / 16257	DEF	AT	DEF	AT	4
17330 / 16281	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	4
18230 / 17000	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	POS	AT	4
18530 / 17244	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	POS	AT	4
19070 / 17690	POS	AT Upper Miocene (Tortonian) Catinaster coalitus	POS	AT	4
19190 / 17791	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	4
19280 / 17868	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	POS	AT	4
19490 / 18046	DEF	AT	DEF	AT	4
19520 / 18072	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	POS	AT	4
19820 / 18333	DEF	AT	DEF	AT	4
20150 / 18627	DEF	AT	POS	AT	4
20470 / 18919	POS	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	4
20540 / 18983	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	AT	4

GEOLOGIC 02-FEB-2011

675

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:GC826Date of Summary:01-DEC-1998First Sample Examined:11000Lease Number:G09982Source of Paleo:OPERATORBorehole MD:22400Well Name:001Paleo Done By:OPERATORBorehole TVD:20794

API Well Number: 608115012801 Drilling Operator: AMOCO CORPORATION Rkb Elevation: 46
Paleo Report Num: 1 of 1 Sample Range: 11000 - 22400 Water Depth: 6734

Paleo Report Num: 1 of 1 Sample Range: 11000 - 22400

Public Info Code: Y 24-DEC-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
20630 / 19067	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	4
20720 / 19152	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	4
20750 / 19180	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	4
21020 / 19438	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	4
21140 / 19553	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	4
21650 / 20051	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	POS	AT	4
21710 / 20111	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	4
21740 / 20140	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	4
21890 / 20288	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	4
22000 / 20397	POS	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	POS	AT	4
22020 / 20417	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	4
22280 / 20674	DEF	AT Lower Miocene (Aquitanian) Discoaster saundersi	POS	AT	4
22360 / 20754	DEF	AT Upper Oligocene (Chattian) Zyghrablithus bijugatus	POS	AT	4
22380 / 20774	DEF	IN Upper Oligocene (Chattian) Bolivina perca	POS	AT	4
22400 / 20794	DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 676

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 866 14220 Date of Summary: 27-AUG-2007 First Sample Examined: Lease Number: G16821 Source of Paleo: OPERATOR 22110 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 22017 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 608114045900 **Rkb Elevation:** 88 **Sample Range:** 14220 - 22110 Paleo Report Num: 1 of 1 Water Depth: 4065 Public Info Code: Y 29-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram and nannofossil species abundance and diversity tables available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
14220 / 14127	DEF	AT first sample examined	DEF	AT
14221 / 14128	DEF	IN bottom of salt	DEF	AT
14258 / 14165	POS	IN Upper Cretaceous Campanian Stage	DEF	AT
14430 / 14337	POS	IN Upper Cretaceous Maastrichtian Stage	DEF	AT
15680 / 15587	POS	AT Upper Paleocene (Thanetian) Cruciplacolithus tenuis (increase)	DEF	AT
15810 / 15717	POS	AT Upper Paleocene (Thanetian) Fasciculithus tympaniformis	DEF	AT
16200 / 16107	POS	AT Middle Eocene (Bartonian) Chiasmolithus gigas	DEF	AT
16260 / 16167	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
16320 / 16227	DEF	AT out-of-place section	DEF	AT
16380 / 16287	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
16439 / 16346	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
16440 / 16347	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
16590 / 16497	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
16656 / 16563	DEF	AT local marker floral increase	DEF	AT
16720 / 16627	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
16733 / 16640	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
16734 / 16641	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
17250 / 17157	DEF	AT local marker floral increase	DEF	AT
17610 / 17517	DEF	AT Arenaceous fauna (local marker)	DEF	AT
17640 / 17547	DEF	AT local marker floral increase	DEF	AT
17910 / 17817	POS	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT
18060 / 17967	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 677

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 866 Date of Summary: 27-AUG-2007 First Sample Examined: 14220 Source of Paleo: OPERATOR Lease Number: G16821 **Borehole MD:** 22110 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 22017 **Drilling Operator:** BP EXPLORATION & PRODUCTION INC **API Well Number:** 608114045900 **Rkb Elevation:** 88 Paleo Report Num: 1 of 1 **Sample Range:** 14220 - 22110 4065 Water Depth:

> Paleo Report Num: 1 of 1 Sample Range: 14220 - 22110 Water Depth: 4065
>
> Public Info Code: Y 29-JUL-2009 Ecozone Eq MMS: Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
18360 / 18267	DEF	AT local marker floral increase	DEF	AT
18569 / 18476	DEF	AT local marker benthic foram increase	DEF	AT
18570 / 18477	DEF	AT local marker planktic foram increase	DEF	AT
19589 / 19496	DEF	AT Bathysiphon fauna	DEF	AT
19590 / 19497	DEF	AT Arenaceous fauna (local marker)	DEF	AT
19770 / 19677	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT
19800 / 19707	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
19920 / 19827	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
20160 / 20067	DEF	AT local marker foram increase	DEF	AT
20910 / 20817	DEF	AT Bathysiphon fauna	DEF	AT
21029 / 20936	DEF	AT local marker floral increase	DEF	AT
21030 / 20937	DEF	AT local marker planktic foram increase	DEF	AT
21060 / 20967	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT
21570 / 21477	POS	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
21690 / 21597	DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT
21870 / 21777	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
22019 / 21926	DEF	AT reworked material	DEF	AT
22020 / 21927	DEF	AT local marker planktic foram increase	DEF	AT
22050 / 21957	DEF	AT local marker floral increase	DEF	AT
22110 / 22017	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 678

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 953 18060 Date of Summary: 02-JAN-2008 First Sample Examined: Lease Number: G20113 Source of Paleo: OPERATOR 22277 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 22277 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114050000 **Rkb Elevation:** 79 **Sample Range:** 18060 - 22277 4811 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 04-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
18060 / 18059	DEF	AT first sample examined	DEF	AT
18061 / 18060	DEF	IN gouge	DEF	AT
18239 / 18238	DEF	AT reworked material	DEF	AT
18240 / 18239	POS	IN Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
18600 / 18599	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
19079 / 19078	DEF	AT reworked material	DEF	AT
19080 / 19079	DEF	AT local marker floral increase	DEF	AT
19440 / 19439	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
19740 / 19739	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
20310 / 20309	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
20610 / 20609	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
21060 / 21059	DEF	AT reworked material	DEF	AT
21116 / 21115	DEF	AT unconformity	DEF	AT
21117 / 21116	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
21118 / 21117	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
21119 / 21118	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21120 / 21119	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
21150 / 21149	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
21179 / 21178	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
21180 / 21179	DEF	AT Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	AT
21840 / 21839	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF	AT
22110 / 22109	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 679

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

DEF AT

18060

22277

22277

79

4811

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 953 Date of Summary: 02-JAN-2008

Lease Number: G20113 Source of Paleo: OPERATOR

Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX

Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114050000

**Sample Range:** 18060 - 22277 Paleo Report Num: 1 of 2

Public Info Code: Y 04-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 001

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Lower Miocene (Burdigalian) Discoaster calculosus (increase) 22260 / 22259 22277 / 22276 DEF AT last sample examined DEF AT

GEOLOGIC 02-FEB-2011

680

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 953 18313 Date of Summary: 01-MAR-2008 First Sample Examined: Lease Number: G20113 Source of Paleo: OPERATOR 22277 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 22277 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114050000 **Rkb Elevation:** 79 **Sample Range:** 18313 - 22277 Paleo Report Num: 2 of 2 4811 Water Depth: Public Info Code: Y 04-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
18313 / 18312	DEF	AT first sample examined	POS	AT	5
18360 / 18359	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
18420 / 18419	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
18720 / 18719	DEF	AT local marker foram decrease	DEF	AT	5
19620 / 19619	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	6
19830 / 19829	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	IN	6
19950 / 19949	DEF	AT	DEF	AT	6
20069 / 20068	DEF	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	AT	6
20070 / 20069	DEF	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	6
20130 / 20129	DEF	AT	DEF	AT	5
20310 / 20309	DEF	AT	DEF	AT	4
20430 / 20429	DEF	AT transported outer shelf facies	DEF	AT	4
20549 / 20548	DEF	AT Bathysiphon fauna	DEF	AT	5
20550 / 20549	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
20730 / 20729	DEF	AT	DEF	AT	4
20910 / 20909	DEF	AT	DEF	AT	5
20970 / 20969	DEF	AT limestone	DEF	AT	5
21029 / 21028	DEF	AT unconformity	DEF	AT	5
21030 / 21029	DEF	AT radiolarians	DEF	AT	5
21069 / 21068	POS	AT out-of-place section	DEF	AT	5
21390 / 21389	POS	AT Upper Oligocene (Chattian) Globigerina sellii	DEF	AT	5
21479 / 21478	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5

GEOLOGIC 02-FEB-2011

681

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 953 Date of Summary: 01-MAR-2008 First Sample Examined: 18313 22277 Lease Number: G20113 Source of Paleo: OPERATOR **Borehole MD:** Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 22277 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608114050000 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 18313 - 22277 4811 Water Depth: Public Info Code: Y 04-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD	<u>Pa</u>	leo Top Description		<u> </u>	<u>Ecozone</u>
21480 / 21479	POS IN La	wer Miocene (Aquitanian) Globigerinoides primordius	DEF	AT	5
21720 / 21719	DEF AT -		DEF	AT	4
22110 / 22109	DEF AT -		DEF	AT	5
22198 / 22197	POS AT co	ndensed section	DEF	ΑT	5
22199 / 22198	DEF AT Lo	wer Miocene (Burdigalian) Catapsydrax stainforthi	DEF	AT	5
22200 / 22199	DEF AT Lo	wer Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
22277 / 22276	DEF AT las	st sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 682

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 955 Date of Summary: 09-FEB-2000 First Sample Examined: 8280 Lease Number: G20114 Source of Paleo: OPERATOR **Borehole MD:** 13420 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 13207 **Drilling Operator: STATOIL EXPLORATION US INC API Well Number:** 608114027100 **Rkb Elevation:** 79 Paleo Report Num: 1 of 1 **Sample Range:** 8280 - 13418 6647 Water Depth: Public Info Code: Y 28-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description		Eco	zone
8280 / 8280 DEF	AT first sample examined	POS	AT	4
8281 / 8281 POS	IN Holocene Globorotalia inflata	POS	AT	4
8760 / 8760 DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	IN	5
8820 / 8820 DEF	AT	DEF	IN	4
8940 / 8940 DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	IN	4
9090 / 9090 DEF	AT local marker planktic foram increase	DEF	IN	4
9300 / 9300 DEF	AT	POS	AT	4
9510 / 9510 DEF	AT sample gap top	POS	AT	4
10410 / 10407 DEF	AT sample gap bottom	POS	AT	4
11580 / 11530 DEF	AT	DEF	IN	4
11789 / 11722 DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	5
11790 / 11723 DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	IN	5
11850 / 11778 DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
11910 / 11833 DEF	AT	DEF	IN	4
12330 / 12218 POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	4
12450 / 12327 DEF	AT local marker benthic foram increase	DEF	IN	4
13348 / 13141 DEF	AT local marker planktic foram increase	DEF	IN	4
13349 / 13142 DEF	AT gypsum	DEF	IN	4
13350 / 13143 POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	4
13418 / 13205 DEF	AT last sample examined	DEF	IN	4

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

683

Ecozono

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 955 Date of Summary: 12-FEB-2007 19190 First Sample Examined: Lease Number: G20114 Source of Paleo: OPERATOR 26536 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 26534 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608114047700 **Rkb Elevation:** 82 **Sample Range:** 19190 - 26536 7278 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 28-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Sognelfjord Prospect, consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report

for details

Pales Ton Description

	Paleo Top Description		Ecoz	<u>zone</u>
DEF	AT first sample examined	DEF	IN	3
POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	3
DEF	AT	DEF	AT	4
POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	4
DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	4
POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
DEF	AT	DEF	AT	4
POS	IN Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
POS	IN Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	4
DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	IN	5
DEF	AT	DEF	AT	4
DEF	AT	DEF	IN	5
DEF	AT	DEF	AT	4
POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	4
DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	POS	AT	4
DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	POS	AT	4
POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	POS	AT	4
POS	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	POS	AT	4
POS	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	POS	AT	4
	POS DEF POS DEF POS DEF DEF DEF DEF DEF DEF POS DEF POS DEF	DEF AT first sample examined  POS AT Upper Miocene (Tortonian) Discoaster bollii  DEF AT  POS AT Upper Miocene (Tortonian) Catinaster coalitus  POS AT Upper Miocene (Tortonian) Coccolithus miopelagicus  DEF AT Upper Miocene (Tortonian) Globorotalia mayeri  POS AT Upper Miocene (Tortonian) Uvigerina 3  DEF AT  POS IN Middle Miocene (Serravallian) Globorotalia fohsi fohsi  POS IN Middle Miocene (Serravallian) Discoaster petaliformis  DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)  DEF AT  DEF AT  DEF AT  POS AT Middle Miocene (Langhian) Helicosphaera ampliaperta  DEF AT Middle Miocene (Langhian) Discoaster deflandrei (acme)  DEF AT Lower Miocene (Aquitanian) Sphenolithus dissimilis  POS AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEFAT first sample examinedDEFPOSAT Upper Miocene (Tortonian) Discoaster bolliiDEFDEFATDEFPOSAT Upper Miocene (Tortonian) Catinaster coalitusDEFPOSAT Upper Miocene (Tortonian) Coccolithus miopelagicusDEFDEFAT Upper Miocene (Tortonian) Globorotalia mayeriDEFPOSAT Upper Miocene (Tortonian) Uvigerina 3DEFDEFATDEFPOSIN Middle Miocene (Serravallian) Globorotalia fohsi fohsiDEFPOSIN Middle Miocene (Serravallian) Globorotalia fohsi robustaDEFDEFAT Middle Miocene (Serravallian) Discoaster petaliformisDEFDEFAT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)DEFDEFATDEFDEFATDEFDEFATDEFDEFAT Middle Miocene (Langhian) Helicosphaera ampliapertaDEFDEFAT Middle Miocene (Langhian) Discoaster deflandrei (acme)POSDEFAT Lower Miocene (Aquitanian) Sphenolithus dissimilisPOSPOSAT Lower Miocene (Burdigalian) Catapsydrax dissimilisPOSPOSAT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatusPOS	DEF AT first sample examined  POS AT Upper Miocene (Tortonian) Discoaster bollii  DEF AT  DEF AT  POS AT Upper Miocene (Tortonian) Catinaster coalitus  DEF AT Upper Miocene (Tortonian) Coccolithus miopelagicus  DEF AT Upper Miocene (Tortonian) Coccolithus miopelagicus  DEF AT Upper Miocene (Tortonian) Globorotalia mayeri  DEF AT Upper Miocene (Tortonian) Uvigerina 3  DEF AT Upper Miocene (Tortonian) Uvigerina 3  DEF AT Upper Miocene (Serravallian) Globorotalia fohsi fohsi  DEF AT  DEF AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi  DEF AT Middle Miocene (Serravallian) Discoaster petaliformis  DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)  DEF AT  DEF AT  DEF AT  DEF AT  DEF AT  DEF AT  DEF AT Middle Miocene (Langhian) Helicosphaera ampliaperta  DEF AT Middle Miocene (Langhian) Discoaster deflandrei (acme)  DEF AT Lower Miocene (Aquitanian) Sphenolithus dissimilis  POS AT Lower Miocene (Burdigalian) Catapsydrax dissimilis  POS AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus

**GEOLOGIC** 02-FEB-2011 PAGE: 684

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 955 Date of Summary: 12-FEB-2007 First Sample Examined: 19190 Lease Number: G20114 Source of Paleo: OPERATOR **Borehole MD:** 26536 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 26534 **API Well Number:** 608114047700 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 82 7278 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 19190 - 26536

Public Info Code: Y 28-APR-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
24740 / 24738	POS	AT Lower Miocene (Aquitanian) Globorotalia kugleri	POS	AT	4
24800 / 24798	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	POS	AT	4
24830 / 24828	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	POS	AT	4
24860 / 24858	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	POS	AT	4
24949 / 24947	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	POS	AT	4
24950 / 24948	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	POS	AT	4
25040 / 25038	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	POS	AT	4
25129 / 25127	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	POS	AT	4
25130 / 25128	POS	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	POS	AT	4
25219 / 25217	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	POS	AT	4
25220 / 25218	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	POS	AT	4
25250 / 25248	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	POS	AT	4
25279 / 25277	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	POS	AT	4
25280 / 25278	DEF	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	POS	AT	4
25340 / 25338	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	POS	AT	4
25370 / 25368	DEF	AT Middle Eocene (Bartonian) Chiasmolithus solitus	POS	AT	4
25460 / 25458	DEF	AT radiolarians	POS	AT	4
25520 / 25518	DEF	AT Middle Eocene (Bartonian) Sphenolithus furcatolithoides	POS	AT	4
26210 / 26208	POS	AT Lower Eocene (Ypresian) Toweius crassus	POS	AT	4
26330 / 26328	POS	AT Upper Paleocene (Thanetian) Toweius eminens	POS	AT	4
26536 / 26534	DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011

685

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 955 19460 Date of Summary: 02-APR-2007 First Sample Examined: Lease Number: G20114 Source of Paleo: OPERATOR 26758 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 25542 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608114047701 **Rkb Elevation:** 82 **Sample Range:** 19460 - 26758 7278 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 28-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Sognelfjord Prospect, consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see

report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
19460 / 19190	DEF	AT first sample examined	DEF	IN	5
19570 / 19276	POS	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	IN	5
19930 / 19560	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	5
20589 / 20077	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	IN	5
20590 / 20078	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	IN	5
20860 / 20292	DEF	AT	DEF	AT	4
21940 / 21148	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	4
21970 / 21172	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	ΑT	4
22300 / 21432	DEF	AT	DEF	ΑT	5
22780 / 21813	DEF	AT	DEF	AT	4
23710 / 22578	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
23980 / 22818	DEF	IN Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	4
24280 / 23094	DEF	AT	DEF	ΑT	5
24340 / 23151	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
24910 / 23699	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	ΑT	5
25480 / 24265	POS	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	5
25599 / 24384	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	5
25600 / 24385	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	5
25780 / 24565	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
25809 / 24594	POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	5
25810 / 24595	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	5

GEOLOGIC

PAGE: 686

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GC 955 Date of Summary: 02-APR-2007 First Sample Examined: 19460 Lease Number: G20114 Source of Paleo: OPERATOR **Borehole MD:** 26758 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 25542 **API Well Number:** 608114047701 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 19460 - 26758 7278 Water Depth: Public Info Code: Y 28-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	<u>zone</u>
26590 / 25374	DEF	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	AT	5
26620 / 25404	DEF	AT out-of-place section	DEF	AT	5
26709 / 25493	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT	5
26710 / 25494	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT	5
26740 / 25524	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT	5
26758 / 25542	DEF	AT last sample examined	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 687

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: GI20Date of Summary: 01-NOV-2001First Sample Examined:0Lease Number: G03596Source of Paleo: COMPLETION REPORT (WELL SUMMARY)Borehole MD:12535

Lease Number:G03596Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:Well Name:B001Paleo Done By:OPERATORBorehole TVD:

Well Name:B001Paleo Done By:OPERATORBorehole TVD:12163API Well Number:177174043300Drilling Operator:VASTAR OFFSHORE INCRkb Elevation:116

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 77

Public Info Code: Y 22-FEB-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10500 / 10157	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
12500 / 12128	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT

GEOLOGIC 02-FEB-2011

688

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 41 Date of Summary: 10-MAY-2000 First Sample Examined: 4560 Lease Number: 00130 Source of Paleo: OPERATOR **Borehole MD:** 17504 Well Name: 008 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17500 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177174042400 **Rkb Elevation:** 90 Paleo Report Num: 1 of 2 **Sample Range:** 4560 - 17504 Water Depth: 84 Public Info Code: Y 14-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
4560 / 4560	DEF	AT first sample examined	DEF	AT	1
4980 / 4980	DEF	AT	DEF	AT	2
5040 / 5040	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	2
7350 / 7349	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	2
8760 / 8759	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	3
9210 / 9209	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	3
10470 / 10469	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	3
11250 / 11249	DEF	AT Upper Miocene (Tortonian) Amphistegina "E"	DEF	AT	3
11430 / 11429	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
13260 / 13259	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
15570 / 15568	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
16830 / 16826	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
16950 / 16946	DEF	AT	DEF	AT	5
17504 / 17498	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

689

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 41 Date of Summary: 30-MAY-2000 First Sample Examined: 4560 Lease Number: 00130 Source of Paleo: OPERATOR **Borehole MD:** 17504 Well Name: 008 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17500 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177174042400 **Rkb Elevation:** 90 Paleo Report Num: 2 of 2 **Sample Range:** 4560 - 17504 Water Depth: 84 Public Info Code: Y 14-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4560 / 4560	DEF A	T first sample examined	DEF	AT
4561 / 4561	DEF IN	N Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8460 / 8459	DEF A	T Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
9510 / 9509	DEF A	T Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
11760 / 11759	POS A	T Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
13290 / 13289	POS A	T Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16140 / 16137	POS IN	Vupper Miocene (Tortonian) Discoaster hamatus	DEF	AT
16170 / 16167	DEF A	T Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
17504 / 17498	DEF A	T last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 690

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 106 3970 Date of Summary: 20-JAN-2006 First Sample Examined: Lease Number: G24997 Source of Paleo: OPERATOR 25860 **Borehole MD:** Well Name: 001 Paleo Done By: MICRO-STRAT **Borehole TVD:** 23073 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177184010800 **Rkb Elevation:** 74 **Sample Range:** 3970 - 25860 Paleo Report Num: 1 of 1 347 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
3970 / 3969	DEF	AT first sample examined	DEF	AT	6
4090 / 4089	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	6
7140 / 7049	POS	AT salt	DEF	AT	6
14249 / 12839	POS	AT base of salt	DEF	ΑT	6
14250 / 12840	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	ΑT	6
14400 / 12967	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	ΑT	6
14430 / 12992	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	ΑT	6
14970 / 13458	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	ΑT	6
15690 / 14091	DEF	IN Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	6
16110 / 14461	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	ΑT	6
17070 / 15311	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	ΑT	6
17520 / 15712	DEF	IN Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	6
18780 / 16832	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	ΑT	6
19350 / 17342	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	ΑT	6
19530 / 17507	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	6
20220 / 18144	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	ΑT	6
20669 / 18556	POS	AT reworked material	DEF	ΑT	6
20670 / 18557	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	ΑT	6
21540 / 19318	POS	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	ΑT	6
21600 / 19368	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	6
21780 / 19516	DEF	AT local marker floral increase	DEF	ΑT	6
22230 / 19875	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus (consistent)	DEF	AT	6

GEOLOGIC

691

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: GI 106 Date of Summary: 20-JAN-2006 First Sample Examined: 3970 Source of Paleo: OPERATOR Lease Number: G24997 **Borehole MD:** 25860 Well Name: 001 Paleo Done By: MICRO-STRAT **Borehole TVD:** 23073 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177184010800 **Rkb Elevation:** 74 Paleo Report Num: 1 of 1 **Sample Range:** 3970 - 25860 347 Water Depth:

Public Info Code: Y 30-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
22320 / 19944	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	6
23550 / 20920	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	6
23940 / 21263	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
24120 / 21426	DEF	AT local marker floral increase	DEF	AT	6
24270 / 21563	POS	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT	6
24750 / 22014	POS	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	6
25860 / 23073	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 692

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 111 15620 Date of Summary: 17-NOV-2000 First Sample Examined: Lease Number: G13943 Source of Paleo: OPERATOR **Borehole MD:** 21269 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19580 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177184009801 **Rkb Elevation:** 82 **Sample Range:** 15620 - 21269 Paleo Report Num: 1 of 2 320 Water Depth: Public Info Code: Y 03-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
15620 / 15205	DEF	AT first sample examined	DEF	AT
15621 / 15206	DEF	AT out-of-place section	DEF	AT
15710 / 15278	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15830 / 15376	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
16760 / 16111	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
16761 / 16111	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
17540 / 16705	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
18980 / 17822	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
20030 / 18633	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
21269 / 19612	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

693

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 111 15620 Date of Summary: 17-NOV-2000 First Sample Examined: Lease Number: G13943 Source of Paleo: OPERATOR 21269 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19580 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177184009801 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 15620 - 21269 320 Water Depth: Public Info Code: Y 03-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15620 / 15205	DEF	AT first sample examined	DEF /	AT 5
15621 / 15206	POS	IN Upper Miocene (Messinian) Globorotalia juanai	DEF /	AT 5
16790 / 16134	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF /	AT 5
17600 / 16751	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF /	AT 4
18320 / 17310	DEF	AT faunal change (no faunal increase)	DEF /	AT 5
20030 / 18633	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF /	AT 5
20060 / 18656	DEF	AT faunal change (no faunal increase)	DEF I	N 5
20300 / 18846	DEF	AT faunal change (no faunal increase)	DEF /	AT 5
21269 / 19612	DEF	AT last sample examined	DEF /	AT 5

GEOLOGIC 02-FEB-2011 PAGE: 694

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 20-APR-1999 3800 First Sample Examined: Lease Number: G13943 Source of Paleo: OPERATOR 21540 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20601 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177184008900 **Rkb Elevation:** 96 Paleo Report Num: 1 of 2 **Sample Range:** 3800 - 21540 323 Water Depth: Public Info Code: Y 19-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
3800 / 3799	DEF	AT first sample examined	DEF	AT	4
6350 / 6295	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
6470 / 6410	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
6500 / 6439	DEF	AT anhydrite	POS	AT	5
6560 / 6496	DEF	AT salt	POS	AT	5
15470 / 15051	DEF	AT base of salt	POS	AT	5
15650 / 15223	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
18800 / 18202	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
21290 / 20385	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
21540 / 20601	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

695

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 20-APR-1999 First Sample Examined: 3800 Source of Paleo: OPERATOR 21540 Lease Number: G13943 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. 20601 **Borehole TVD:** API Well Number: 177184008900 **Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation:** 96 Paleo Report Num: 2 of 2 3800 - 21540 323 Sample Range: Water Depth: Public Info Code: Y 19-MAR-2009 003 **Ecozone Eg MMS:** Paleo ID:

Remark: Calcareous nannofossil report, 15470=out of salt - mixed late and middle Miocene, 15950=Discoaster prepentaradiatus - questionably in a normal stratigraphic section - may be part of a mixed allochthonous flora as indicated at 15470, the 15950 to 16160 contains rare but consistent occurrences of Discoaster prepentaradiatus and no older flora, the sidewall core sample at 16300 contains abundant flora with Catinaster mexicanus and Discoaster loeblichii - this is the youngest well-defined flora below the salt and may mark the top of a normal age section - the interval above this, below the jumbled zone, appears to be part of a reverse or overturned section that is defined by progressively younger nannos downsection, Catinaster coalitus (15800), Discoaster bollii (15890) and Discoaster prepentaradiatus (15950), 17100=significant reoccurrence of Discoaster prepentaradiatus which

should define the 780my maximum flooding surface, nannospecies abundance and diversity chart available, see report for details

MD / TVD **Paleo Top Description Ecozone** 3800 / 3799 DEF AT first sample examined DEF AT 5780 / 5746 DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B" DEF AT 6020 / 5978 AT Middle Pleistocene (Ionian) Pseudoemiliania ovata DEF AT 6230 / 6180 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) DEF AT DEF AT 6320 / 6266 AT Lower Pliocene (Zanclian) Sphenolithus abies 6410 / 6352 AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica DEF AT 6500 / 6439 DEF AT salt DEF AT DEF AT base of salt DEF AT 15470 / 15051 15950 / 15513 POS AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT 16300 / 15850 DEF AT Upper Miocene (Tortonian) Catinaster mexicanus DEF AT DEF AT condensed section DEF AT 17100 / 16614 17750 / 17222 AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT AT Upper Miocene (Tortonian) Discoaster bollii DEF AT 18830 / 18230 DEF 19400 / 18754 POS AT Upper Miocene (Tortonian) Discoaster hamatus DEF AT AT Upper Miocene (Tortonian) Catinaster coalitus DEF AT 20870 / 20025 DEF AT last sample examined DEF AT 21540 / 20601

GEOLOGIC 02-FEB-2011

696

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 16-OCT-1998 3800 First Sample Examined: Lease Number: G13944 Source of Paleo: OPERATOR 21600 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 21600 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177184008700 **Rkb Elevation:** 96 **Sample Range:** 3800 - 21600 Paleo Report Num: 1 of 2 323 Water Depth: Public Info Code: Y 03-NOV-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	_	Paleo Top Description		<u>E</u> (	cozone
3800 / 380	0 DEF	AT first sample examined	DEF	AT	4
5150 / 515	0 DEF	AT	DEF	AT	5
5990 / 599	0 DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
6320 / 632	0 DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
6530 / 653	0 DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
6590 / 659	0 DEF	AT	DEF	AT	6
6650 / 665	0 DEF	AT salt	DEF	AT	6
6800 / 680	0 DEF	AT sample gap top	POS	AT	6
14000 / 1399	0 DEF	AT sample gap bottom	DEF	AT	6
14540 / 1453	0 DEF	AT base of salt	DEF	AT	6
14690 / 1467	9 DEF	AT	DEF	AT	5
17180 / 1716	8 DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	5
19070 / 1905	8 DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
19190 / 1917	8 DEF	AT local marker deep water fauna	DEF	AT	5
21600 / 2158	7 DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

697

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 16-OCT-1998 3800 First Sample Examined: Lease Number: G13944 Source of Paleo: OPERATOR 21600 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 21600 **Drilling Operator: ANADARKO PETROLEUM CORPORATION API Well Number:** 177184008700 **Rkb Elevation:** 96 Paleo Report Num: 2 of 2 Sample Range: 3800 - 21600 323 Water Depth: Public Info Code: Y 03-NOV-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 14540=consistent development of Discoaster bollii within the jumbled zone below salt, nannospecies abundance and

diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
3800 / 3800	DEF	AT first sample examined	DEF	AT
5450 / 5450	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
5870 / 5870	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
6170 / 6170	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
6320 / 6320	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
6470 / 6470	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
6770 / 6770	DEF	AT salt	DEF	AT
8240 / 8236	DEF	AT sample gap top	DEF	AT
14000 / 13990	DEF	AT sample gap bottom	DEF	AT
14540 / 14530	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15080 / 15069	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
15500 / 15489	DEF	AT local marker floral increase	DEF	AT
15620 / 15608	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
16340 / 16328	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
17180 / 17168	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
18590 / 18578	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
19550 / 19538	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
20300 / 20287	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
21600 / 21587	DEF	AT last sample examined	DEF	AT

GEOLOGIC

698

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 07-APR-2000 First Sample Examined: 4370 Lease Number: G13944 Source of Paleo: OPERATOR 21475 **Borehole MD:** Well Name: A003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20110 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177184009200 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 4370 - 21475 326 Water Depth: Public Info Code: Y 27-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
4370 / 4370	DEF	AT first sample examined	DEF	AT	4
5150 / 5149	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	ΑT	4
6290 / 6282	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
6320 / 6312	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
6470 / 6458	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
6680 / 6662	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
6710 / 6691	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	ΑT	6
7160 / 7125	DEF	AT salt	DEF	ΑT	
7280 / 7241	DEF	IN salt	DEF	ΑT	
15350 / 13999	DEF	AT base of salt	DEF	ΑT	
15380 / 14029	POS	AT out-of-place section	DEF	ΑT	
15470 / 14119	DEF	AT	DEF	ΑT	5
15500 / 14148	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	5
16310 / 14954	DEF	AT	DEF	ΑT	4
16640 / 15283	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	ΑT	4
17240 / 15882	DEF	AT	DEF	ΑT	5
18620 / 17260	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	ΑT	5
20480 / 19117	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	5
21475 / 20110	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 699

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 07-APR-2000 4370 First Sample Examined: Lease Number: G13944 Source of Paleo: OPERATOR 21475 **Borehole MD:** Well Name: A003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 20110 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177184009200 Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 4370 - 21475 326 Water Depth: Public Info Code: Y 27-APR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
4370 / 4370	DEF	AT first sample examined	DEF	AT
5390 / 5388	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
5510 / 5508	DEF	AT out-of-place section	DEF	AT
5840 / 5837	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
6290 / 6282	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
6320 / 6312	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6380 / 6370	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
6410 / 6400	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
6469 / 6457	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
6470 / 6458	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
6710 / 6691	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
6980 / 6951	DEF	AT salt	DEF	AT
15320 / 13970	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
15440 / 14089	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
15590 / 14238	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
17120 / 15762	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
17300 / 15942	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
17360 / 16002	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
18110 / 16751	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
19160 / 17799	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
19940 / 18578	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
20540 / 19177	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 700

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Public Info Code: Y 27-APR-2010

Area Block: GI 116 Date of Summary: 07-APR-2000 First Sample Examined: 4370

Lease Number:G13944Source of Paleo:OPERATORBorehole MD:21475Well Name:A003Paleo Done By:PALEO-DATA, INC.Borehole TVD:20110

API Well Number: 177184009200 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 85

Paleo Report Num: 2 of 2 Sample Range: 4370 - 21475 Water Depth: 326

MD / TVDPaleo Top DescriptionEcozone21475 / 20110DEF AT last sample examinedDEF AT

**Ecozone Eq MMS:** 

GEOLOGIC 02-FEB-2011 PAGE: 701

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: Gl 116	Date of Summary: 29-JUN-2000	First Sample Examined:	4270
Lease Number: G13944	Source of Paleo: OPERATOR	Borehole MD:	9078
Well Name: A004	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	9051
<b>API Well Number:</b> 177184009500	Drilling Operator: ANADARKO PETROLEUM CORPORATION	Rkb Elevation:	82
Paleo Report Num: 1 of 2	Sample Range: 4270 - 8890	Water Depth:	323
Public Info Code: Y 01-JUL-2010	Ecozone Eq MMS: Y	Paleo ID:	001

#### Remark:

<u>MD/</u>	TVD		Paleo Top Description		<u>Ec</u>	cozone
4270 /	4270	DEF	AT first sample examined	DEF	IN	4
5290 /	5289	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	IN	4
5770 /	5767	DEF	AT	DEF	AT	5
5920 /	5916	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
6130 /	6125	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
6310 /	6303	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
6370 /	6363	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
6430 /	6422	POS	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
6460 /	6452	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
6580 /	6570	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
6850 /	6835	DEF	AT salt	DEF	IN	5
7150 /	7130	DEF	AT salt weld	DEF	IN	5
8890 /	8864	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC

702

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 29-JUN-2000 4270 First Sample Examined: Lease Number: G13944 Source of Paleo: OPERATOR **Borehole MD:** 9078 Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9051 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177184009500 Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 4270 - 8890 323 Water Depth: Public Info Code: Y 01-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description	<u>Ecozone</u>	
4270 / 4270	DEF AT	first sample examined	DEF AT	
5830 / 5827	DEF AT	Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT	
5920 / 5916	DEF AT	Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT	
6130 / 6125	DEF AT	Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT	
6400 / 6392	DEF AT	Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT	
6430 / 6422	DEF AT	Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT	
6580 / 6570	DEF AT	Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF AT	
6879 / 6863	DEF AT	salt	DEF AT	
6880 / 6864	DEF AT	last sample examined	DEF AT	

GEOLOGIC 02-FEB-2011

703

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Gl 116 Date of Summary: 27-JUL-2000 First Sample Examined: 16090 Lease Number: G13944 Source of Paleo: OPERATOR **Borehole MD:** 18000 17392 Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number: 177184009501 Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 16090 - 18001 323 Water Depth: Public Info Code: Y 05-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Interim calcareous nannofossil report, tops at 16120, 16150, 16240 and 16600 are oldest age-diagnostic species

MD / TVD		Paleo Top Description		<b>Ecozone</b>
16090 / 15490	DEF	AT first sample examined	DEF	AT
16091 / 15491	DEF	AT base of salt	DEF	AT
16120 / 15519	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
16150 / 15549	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
16240 / 15637	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
16600 / 15993	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16690 / 16083	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
17230 / 16623	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
18001 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 704

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	HI 37	Date of Summary:	30-APR-2001	First Sample Examined:	0
Lease Number:	G15769	Source of Paleo:	COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14400
Well Name:	A002	Paleo Done By:	OPERATOR	Borehole TVD:	14303
<b>API Well Number:</b>	427084051300	<b>Drilling Operator:</b>	IP PETROLEUM COMPANY INC	Rkb Elevation:	99
Paleo Report Num:	1 of 1	Sample Range:	0 - 0	Water Depth:	39
Public Info Code:	Y 02-JUL-2010	Ecozone Eq MMS:		Paleo ID:	001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6930 / 6930	DEF AT Middle Miocene (Langhian) Amphistegina "B"	DEF AT
9188 / 9101	DEF AT Lower Miocene (Burdigalian) Robulus chambersi	DEF AT
9948 / 9852	DEF AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF AT
11040 / 10943	DEF AT Lower Miocene (Aquitanian) Siphonina davisi	DEF AT
13598 / 13501	DEF IN Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 705

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 37	Date of Summary: 11-SEP-2000	First Sample Examined:	0
Lease Number: G15769	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14350
Well Name: A003	Paleo Done By: OPERATOR	Borehole TVD:	13951
API Well Number: 427084051700	Drilling Operator: IP PETROLEUM COMPANY INC	Rkb Elevation:	99
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	39
Public Info Code: Y 27-AUG-2010	Ecozone Eq MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7170 / 6878	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
9450 / 9058	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
10195 / 9797	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT
10800 / 10401	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT
12090 / 11691	DEF	AT Lower Miocene (Aquitanian) Lenticulina hanseni	DEF	AT
13610 / 13211	DEF	AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF	AT

GEOLOGIC 02-FEB-2011

706

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 11170 Date of Summary: 14-NOV-2008 First Sample Examined: Lease Number: G14878 Source of Paleo: OPERATOR **Borehole MD:** 14249 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13700 **Drilling Operator:** W & T OFFSHORE INC **API Well Number:** 427104017001 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 11170 - 14250 38 Water Depth: Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	!	Paleo Top Description		<u>E</u>	cozone
11170 / 10678	DEF AT	first sample examined	DEF	AT	3
12190 / 11648	POS AT	Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT	4
12310 / 11766	POS AT	Lower Miocene (Aquitanian) Planulina palmerae	DEF	AT	4
12340 / 11795	POS AT	maximum flooding surface	DEF	AT	4
13240 / 12691	POS AT	Lower Miocene (Aquitanian) Lenticulina hanseni	DEF	AT	4
14250 /	DEF AT	last sample examined	DEF	AT	4

**GEOLOGIC** 02-FEB-2011 707

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 14110 Date of Summary: 14-NOV-2008 First Sample Examined: Lease Number: G14878 Source of Paleo: OPERATOR 15583 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15024 **Drilling Operator:** W & T OFFSHORE INC **API Well Number:** 427104017002 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 **Sample Range:** 14110 - 15580 Water Depth: 41 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD	Paleo Top Description		<u>E</u>	cozone
14110 / 13552	DEF AT first sample examined	DEF	AT	4
14111 / 13553	DEF IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	4
14112 / 13554	DEF IN Lower Miocene (Aquitanian) Lenticulina hanseni	DEF	AT	4
14920 / 14362	POS AT Lower Miocene (Aquitanian) Cristellaria "R"	DEF	AT	4
15010 / 14452	POS AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT	4
15580 / 15021	DEF AT last sample examined	DEF	AT	4

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 708

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 39	Date of Summary: 29-AUG-2001	First Sample Examined:	0
Lease Number: G04078	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11905
Well Name: 010	Paleo Done By: OPERATOR	Borehole TVD:	11830
API Well Number: 427104014001	<b>Drilling Operator: HOUSTON EXPLORATION COMPANY</b>	Rkb Elevation:	93
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	39
Public Info Code: Y 20-JUL-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9413 / 9349	DEF AT Lower Miocene (Burdigalian) Robulus chambersi	DEF AT
9996 / 9927	DEF AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF AT

GEOLOGIC 02-FEB-2011

709

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI Date of Summary: 28-SEP-2001 First Sample Examined: 4500 Lease Number: G18948 Source of Paleo: OPERATOR **Borehole MD:** 13900 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13899 **Drilling Operator: WESTPORT RESOURCES CORPORATION API Well Number:** 427104014300 **Rkb Elevation:** 99 Paleo Report Num: 1 of 1 **Sample Range:** 4500 - 13900 Water Depth: 48 Public Info Code: Y 19-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco <sub>2</sub>	zone
4500 / 4500	DEF	AT first sample examined	DEF	AT	2
4501 / 4501	DEF	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	2
5250 / 5250	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	2
5710 / 5710	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	2
6290 / 6290	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	2
6560 / 6560	DEF	AT	DEF	AT	3
6770 / 6770	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	3
7130 / 7130	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	3
8370 / 8370	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	3
9570 / 9570	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	3
10950 / 10950	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	3
13900 / 13899	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

710

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 115 Date of Summary: 02-OCT-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G18936 **Borehole MD:** 10388 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 9766 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 427084052300 **Rkb Elevation:** 96 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 45 Public Info Code: Y 07-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
1810 / 1810	DEF IN Upper Miocene (Messinian) Textularia "X"	DEF AT
4862 / 4862	DEF IN Upper Miocene (Tortonian) Discorbis 12	DEF AT
5594 / 5593	DEF IN Upper Miocene (Tortonian) Cibicides carstensi	DEF AT
6852 / 6847	DEF IN Middle Miocene (Serravallian) Cristellaria "I"	DEF AT
7710 / 7659	DEF IN Middle Miocene (Serravallian) Cibicides opima	DEF AT
8705 / 8474	DEF IN Middle Miocene (Langhian) Robulus "L" / 43	DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

711

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 116	Date of Summary: 28-JUL-2001	First Sample Examined:	0
Lease Number: G06156	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	16695
Well Name: 004	Paleo Done By: OPERATOR	Borehole TVD:	15008
API Well Number: 427084052000	Drilling Operator: FOREST OIL CORPORATION	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	45
Public Info Code: Y 21-DEC-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD/TVD	Paleo Top Description	Ecozone
9320 / 9320	DEF AT Middle Miocene (Langhian) Robulus "L" / 43	DEF AT
10490 / 10466	DEF AT Lower Miocene (Burdigalian) Robulus 54B	DEF AT
16520 / 14885	DEF AT Lower Miocene (Burdigalian) Robulus chambersi	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 712

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 116	Date of Summary: 22-OCT-1999	First Sample Examined:	8900
Lease Number: G06156	Source of Paleo: OPERATOR	Borehole MD:	15975
Well Name: B002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	13721
API Well Number: 427084049200	Drilling Operator: FOREST OIL CORPORATION	Rkb Elevation:	103
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 8900 - 15975	Water Depth:	45
Public Info Code: Y 12-OCT-2009	Ecozone Eg MMS: Y	Paleo ID:	002

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8900 / 8899	DEF	AT first sample examined	DEF A	AT 3
9170 / 9169	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF A	AT 3
9980 / 9978	DEF	AT	DEF A	AT 2
11020 / 10982	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF A	AT 2
13300 / 12291	DEF	AT	DEF A	AT 3
15975 / 13693	DEF	AT last sample examined	DEF A	AT 3

GEOLOGIC 02-FEB-2011

713

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 129	Date of Summary: 12-MAR-1998	First Sample Examined:	0
Lease Number: G01848	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13990
Well Name: 014	Paleo Done By: OPERATOR	Borehole TVD:	13985
API Well Number: 427104012800	Drilling Operator: ORYX ENERGY COMPANY	Rkb Elevation:	83
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	48
Public Info Code: Y 19-MAR-2008	Ecozone Eg MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5520 / 5519	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
6780 / 6779	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT
7500 / 7499	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT
7830 / 7829	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
9330 / 9329	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
10080 / 10079	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
12100 / 12099	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT
13450 / 13446	DEF	AT Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 714

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 129 Date of Summary: 21-JAN-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G01848 **Borehole MD:** 12601 Well Name: 015 Paleo Done By: OPERATOR **Borehole TVD:** 11487 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 427104013000 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 50 Public Info Code: Y 14-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
8200 / 7753	DEF AT Middle Miocene (Serravallian) Bigenerina humblei	DEF AT
11080 / 10198	DEF AT Middle Miocene (Langhian) Robulus "L" / 43	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 715

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 141 Date of Summary: 17-NOV-1999 First Sample Examined: 0

Lease Number:G14864Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:8200

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD: 8200

API Well Number: 427084050000 Drilling Operator: TDC ENERGY CORPORATION Rkb Elevation: 87

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 54

Public Info Code: Y 06-NOV-2009 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

7277 / 7277 DEF IN Middle Miocene (Langhian) Robulus "L" / 43 DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 716

0

8420

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 141 Date of Summary: 19-MAR-2001 First Sample Examined:

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14864 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 

7504 **Drilling Operator: TDC ENERGY CORPORATION API Well Number:** 427084053000 **Rkb Elevation:** 

97

Paleo Report Num: 1 of 1 0 - 0 Sample Range: Water Depth: 52 Public Info Code: Y 18-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD **Paleo Top Description Ecozone** 

7277 / 6933 DEF IN Middle Miocene (Langhian) Robulus "L" / 43 DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 717

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 174 Date of Summary: 01-APR-2002 4000 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G17151 20034 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 16441 **API Well Number:** 427084055900 **Drilling Operator:** MARINER GULF OF MEXICO LLC **Rkb Elevation:** 98 Paleo Report Num: 1 of 1 **Sample Range:** 4000 - 20020 Water Depth: 47 Public Info Code: Y 07-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Paleo done by Rachel N Rosen, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
4000 / 4000	DEF	AT first sample examined	DEF	AT	1
4390 / 4389	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	1
4600 / 4599	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	1
4780 / 4779	DEF	AT	DEF	· IN	1
4840 / 4839	DEF	AT	DEF	AT	2
4900 / 4899	DEF	AT	DEF	· IN	1
5110 / 5109	POS	AT Middle Miocene (Serravallian) Textularia "W"	DEF	- IN	1
5290 / 5289	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	- IN	1
5530 / 5529	DEF	AT	DEF	AT	2
5980 / 5979	DEF	AT	DEF	AT	1
6250 / 6249	DEF	AT	DEF	AT	2
6430 / 6429	DEF	AT	DEF	- IN	1
6670 / 6669	DEF	AT	DEF	AT	1
6880 / 6879	DEF	AT	DEF	- IN	1
7030 / 7029	DEF	AT foram flood	DEF	IN	2
7840 / 7839	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	IN	2
8020 / 8019	DEF	AT	DEF	AT	1
8200 / 8199	DEF	AT local marker deep water fauna	DEF	AT	2
8320 / 8318	DEF	AT local marker foram increase	DEF	AT	2
8740 / 8738	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	· IN	2
9790 / 9786	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	· IN	2
9850 / 9846	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	· IN	2

GEOLOGIC 02-FEB-2011 PAGE: 718

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 174 Date of Summary: 01-APR-2002 First Sample Examined: 4000 Source of Paleo: OPERATOR Lease Number: G17151 **Borehole MD:** 20034 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 16441 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 427084055900 **Rkb Elevation:** 98 Paleo Report Num: 1 of 1 **Sample Range:** 4000 - 20020 47 Water Depth:

Public Info Code: Y 07-DEC-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>E</u>	cozone
9940 / 9936	DEF	AT	DE	F	IN	3
10090 / 10085	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DE	F	IN	3
10150 / 10145	POS	AT Middle Miocene (Langhian) Globigerinoides sicanus	DE	F	IN	3
10420 / 10409	DEF	AT	DE	F	AT	4
10720 / 10694	POS	AT Arenaceous fauna (local marker)	DE	F	AT	4
10880 / 10838	DEF	AT Arenaceous fauna (local marker)	DE	F	AT	4
11590 / 11376	POS	AT Middle Miocene (Langhian) Robulus "L" / 43	DE	F	AT	4
11680 / 11433	DEF	AT	DE	F	IN	3
11690 / 11439	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DE	F	IN	3
11920 / 11571	DEF	AT	DE	F	AT	2
12100 / 11654	DEF	AT foram flood	DE	F	AT	2
12160 / 11679	POS	AT Lower Miocene (Burdigalian) Robulus 54B	DE	F	AT	3
12580 / 11846	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DE	F	AT	3
12760 / 11923	DEF	AT	DE	F	IN	2
13960 / 12592	DEF	AT	DE	F	AT	3
14620 / 12993	DEF	AT	DE	F	AT	2
15220 / 13364	DEF	AT	DE	F	IN	2
16420 / 14121	POS	AT fault	DE	F	IN	2
17380 / 14733	DEF	AT	DE	F	AT	3
17710 / 14942	POS	AT Lower Miocene (Burdigalian) Robulus chambersi	DE	F	AT	3
19300 / 15952	DEF	AT	DE	F	AT	2
20020 / 16432	DEF	AT last sample examined	DE	F	AT	2

GEOLOGIC 02-FEB-2011 PAGE: 719

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 175 4000 Date of Summary: 01-MAY-2002 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G22238 14037 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 13279 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 427084055601 **Rkb Elevation:** 96 Paleo Report Num: 1 of 1 **Sample Range:** 4000 - 13950 Water Depth: 50 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Eco</u>	zone
4000 / 3999	DEF	AT first sample examined	DI	ΞF	AT	1
4090 / 4089	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DI	ΞF	AT	1
4430 / 4429	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DI	ΞF	AT	1
4810 / 4808	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DI	ΞF	AT	1
4990 / 4987	DEF	AT	DI	ΞF	IN	1
5990 / 5985	DEF	AT	DI	ΞF	AT	1
7030 / 7025	DEF	AT foram flood	DI	ΞF	IN	1
7200 / 7195	DEF	IN Middle Miocene (Serravallian) Bigenerina humblei	DI	ΞF	IN	1
7440 / 7435	DEF	AT	DI	ΞF	AT	1
8430 / 8419	DEF	AT	DI	ΞF	AT	2
8460 / 8449	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DI	ΞF	AT	2
8760 / 8746	DEF	AT	DI	ΞF	AT	1
9090 / 9074	POS	AT Middle Miocene (Serravallian) Cristellaria "I"	DI	ΞF	AT	2
9420 / 9402	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DI	ΞF	AT	2
10080 / 10059	DEF	AT	DI	ΞF	IN	1
10140 / 10119	DEF	AT	DI	ΞF	AT	2
10500 / 10477	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DI	ΞF	AT	2
10710 / 10685	DEF	AT local marker planktic foram increase	DI	ΞF	IN	2
10711 / 10686	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DI	ΞF	IN	2
11430 / 11398	POS	AT Middle Miocene (Langhian) Robulus "L" / 43	DI	ΞF	IN	2
11760 / 11715	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DI	ΞF	IN	2
11820 / 11771	DEF	AT Middle Miocene (Langhian) Cibicides 38	DI	ΞF	IN	2

GEOLOGIC 02-FEB-2011

720

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 175 Date of Summary: 01-MAY-2002 First Sample Examined: 4000 Source of Paleo: OPERATOR Lease Number: G22238 **Borehole MD:** 14037 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 13279 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 427084055601 **Rkb Elevation:** 96 Paleo Report Num: 1 of 1 **Sample Range:** 4000 - 13950 Water Depth: 50 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Ec	ozone
11850 / 11798	POS	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	IN	2
12030 / 11959	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	IN	2
12390 / 12263	DEF	AT	DEF	AT	1
13320 / 12886	DEF	AT	DEF	IN	1
13950 / 13233	DEF	AT last sample examined	DEF	IN	1

GEOLOGIC 02-FEB-2011 PAGE: 721

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 175 10300 Date of Summary: 01-JUN-2002 First Sample Examined: Lease Number: G22238 Source of Paleo: OPERATOR 18854 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 15695 **API Well Number:** 427084055602 **Drilling Operator:** MARINER GULF OF MEXICO LLC **Rkb Elevation:** 96 Paleo Report Num: 1 of 1 **Sample Range:** 10300 - 18854 Water Depth: 50 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
10300 / 10278	DEF	AT first sample examined	DEF	AT	
10330 / 10307	POS	IN Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	
10360 / 10337	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	3
10510 / 10485	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	IN	3
10690 / 10663	DEF	AT local marker planktic foram increase	DEF	IN	3
10691 / 10664	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	IN	3
10900 / 10869	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
11020 / 10985	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
11500 / 11424	POS	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	IN	3
11590 / 11502	DEF	AT local marker (general)	DEF	IN	3
11880 / 11746	DEF	IN Middle Miocene (Langhian) Robulus "L" / 43	DEF	IN	3
11960 / 11812	POS	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	IN	3
12060 / 11895	DEF	AT	DEF	AT	2
12231 / 12033	DEF	AT	DEF	AT	1
12340 / 12120	DEF	AT	DEF	IN	1
12370 / 12143	DEF	AT	DEF	AT	2
12400 / 12167	DEF	AT	DEF	AT	1
13120 / 12673	DEF	AT	DEF	AT	2
13360 / 12829	DEF	AT	DEF	IN	2
13450 / 12885	DEF	AT	DEF	AT	1
14130 / 13278	DEF	AT	DEF	AT	2
14340 / 13393	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	3

GEOLOGIC

722

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 175 Date of Summary: 01-JUN-2002 First Sample Examined: 10300 Source of Paleo: OPERATOR Lease Number: G22238 18854 **Borehole MD:** Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 15695 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 427084055602 **Rkb Elevation:** 96 **Sample Range:** 10300 - 18854 Paleo Report Num: 1 of 1 Water Depth: 50 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14970 / 13720	DEF	AT	DEF A	T 2
16350 / 14434	DEF	AT	DEF A	·T 1
16830 / 14676	DEF	AT	DEF A	AT 2
16920 / 14721	DEF	AT	DEF II	٧ 2
17190 / 14855	DEF	AT	DEF A	AT 3
17520 / 15018	DEF	AT local marker (general)	DEF A	AT 3
18854 / 15696	DEF	AT last sample examined	DEF A	ΛT 3

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 723

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 176	Date of Summary: 06-JUN-2000	First Sample Examined:	0
Lease Number: G06167	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	17835
Well Name: C006	Paleo Done By: OPERATOR	Borehole TVD:	8887
API Well Number: 427084050800	Drilling Operator: APACHE CORPORATION	Rkb Elevation:	119
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	54
Public Info Code: Y 01-MAY-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10671 / 5688	DEF AT Middle Miocene (Serravallian) Bigenerina humblei	DEF AT
11492 / 6044	DEF AT Middle Miocene (Serravallian) Cristellaria "I"	DEF AT
16594 / 8309	DEF AT Middle Miocene (Langhian) Robulus "L" / 43	DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

724

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 176	Date of Summary: 28-JUN-2000	First Sample Examined:	0
Lease Number: G06167	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	18028
Well Name: C006	Paleo Done By: OPERATOR	Borehole TVD:	8940
API Well Number: 427084050801	Drilling Operator: APACHE CORPORATION	Rkb Elevation:	119
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	54
Public Info Code: Y 10-JUN-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10486 / 5705	DEF AT Middle Miocene (Serravallian) Bigenerina humblei	DEF AT
11320 / 6063	DEF AT Middle Miocene (Serravallian) Cristellaria "I"	DEF AT
16732 / 8378	DEF AT Middle Miocene (Langhian) Robulus "L" / 43	DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 725

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 176 Date of Summary: 24-OCT-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G06167 **Borehole MD:** 18378 Well Name: C007 Paleo Done By: OPERATOR **Borehole TVD:** 8820 **Drilling Operator:** APACHE CORPORATION **API Well Number:** 427084051900 **Rkb Elevation:** 119 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 54 **Ecozone Eq MMS:**

Remark:

Public Info Code: Y 10-OCT-2010

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9638 / 5744	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF A	<b>Α</b> Τ
17019 / 8287	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF A	ΑT

GEOLOGIC

726

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 197 Date of Summary: 08-NOV-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G22238 **Borehole MD:** 14600 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 14598 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 427084054800 **Rkb Elevation:** 130 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 48 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7600 / 7600	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
9550 / 9550	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT
10150 / 10150	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
11680 / 11680	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
12130 / 12130	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT
14260 / 14259	DEF	IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 727

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 202	Date of Summary: 30-DEC-1999	First Sample Examined:	0
Lease Number: G14870	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13493
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	13484
API Well Number: 427084049900	Drilling Operator: MARINER GULF OF MEXICO LLC	Rkb Elevation:	85
Paleo Report Num: 1 of 2	Sample Range: 0 - 0	Water Depth:	40
Public Info Code: Y 03-MAR-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u>MD / TVD</u>		Paleo Top Description		<u>Ecozone</u>
7716 / 7716	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF A	<b>Α</b> Τ
8425 / 8425	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF A	<b>Α</b> Τ
12100 / 12096	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF A	<b>λ</b> Τ

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 728

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 202	Date of Summary: 15-JAN-2002	First Sample Examined:	0
Lease Number: G14870	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13493
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	13484
API Well Number: 427084049900	Drilling Operator: MARINER GULF OF MEXICO LLC	Rkb Elevation:	85
Paleo Report Num: 2 of 2	Sample Range: 0 - 0	Water Depth:	40
Public Info Code: Y 03-MAR-2008	Ecozone Ea MMS:	Paleo ID:	002

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
10990 / 10989	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF A	ΑT
11315 / 11314	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF A	ΑT
12100 / 12096	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF A	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

729

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 202	Date of Summary: 26-JUN-2000	First Sample Examined:	0
Lease Number: G14870	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15749
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	14766
API Well Number: 427084050600	Drilling Operator: MARINER GULF OF MEXICO LLC	Rkb Elevation:	95
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	40
Public Info Code: Y 03-MAR-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u> </u>		Paleo Top Description		<b>Ecozone</b>
7876 / 7716	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
8598 / 8341	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT
10944 / 10427	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
13171 / 12304	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 730

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 202	Date of Summary: 15-MAY-2001	First Sample Examined:	0
Lease Number: G14870	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14672
Well Name: A003	Paleo Done By: OPERATOR	Borehole TVD:	13322
API Well Number: 427084051500	Drilling Operator: MARINER GULF OF MEXICO LLC	Rkb Elevation:	98
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	42
Public Info Code: Y 03-MAR-2008	Fcozone Fa MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7811 / 7810	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
8442 / 8441	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT
10426 / 10354	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
12380 / 11727	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 731

13730

13305

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 202 Date of Summary: 12-FEB-2001 First Sample Examined: 0

Lease Number: G14870 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: A004 Paleo Done By: OPERATOR Borehole TVD:

API Well Number: 427084052700 Drilling Operator: MARINER GULF OF MEXICO LLC Rkb Elevation: 98

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 42

Public Info Code: Y 03-MAR-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

12064 / 11643 DEF AT Middle Miocene (Langhian) Robulus "L" / 43 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 732

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:HI202Date of Summary:26-MAR-2001First Sample Examined:0Lease Number:G14870Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:14300Well Name:A005Paleo Done By:OPERATORBorehole TVD:13206Pull Number:427094053404Prilling Operator:MARINER CHILE OF MEXICOLL CPilling Operator:MARINER CHILE OF MEXICOLL C

API Well Number: 427084053101 Drilling Operator: MARINER GULF OF MEXICO LLC Rkb Elevation: 104
Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 42

Public Info Code: Y 03-MAR-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9902 / 9900	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
11802 / 11626	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 733

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 202 Date of Summary: 28-SEP-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14870 8235 **Borehole MD:**

Well Name: B001 Paleo Done By: OPERATOR **Borehole TVD:** 

6400 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 427084051400 **Rkb Elevation:** 94

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 65

Public Info Code: Y 03-MAR-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Miocene (Tortonian) Discorbis 12 DEF AT 7435 / 5798

GEOLOGIC 02-FEB-2011

PAGE: 734

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI 206	Date of Summary: 11-APR-2000	First Sample Examined:	8990
Lease Number: G20660	Source of Paleo: OPERATOR	Borehole MD:	11974
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	10900
API Well Number: 427084050900	<b>Drilling Operator: SENECA RESOURCES CORPORATION</b>	Rkb Elevation:	100
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 8990 - 11974	Water Depth:	54
Public Info Code: Y 25-APR-2010	Ecozone Eg MMS: Y	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
8990 / 7916	DEF	AT first sample examined	DEF	AT	2
8991 / 7917	POS	IN Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	2
9370 / 8296	DEF	AT	DEF	AT	3
9700 / 8626	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	3
10210 / 9136	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	3
11974 / 10898	DEF	AT last sample examined	DEF	AT	3

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 735

**Borehole TVD:** 

0

8996

7600

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI 206 Date of Summary: 15-MAY-2000

First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY) **Borehole MD:** 

Well Name: 002 Paleo Done By: OPERATOR

**Drilling Operator: SENECA RESOURCES CORPORATION API Well Number:** 427084051200 **Rkb Elevation:** 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Water Depth: 55 Public Info Code: Y 26-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

Lease Number: G20660

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6694 / 5908	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF A	.T
7858 / 6750	DEF	IN Middle Miocene (Serravallian) Bigenerina humblei	DEF A	.T

GEOLOGIC 02-FEB-2011 PAGE: 736

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 1 7750 Date of Summary: 06-JAN-2005 First Sample Examined: Lease Number: G25566 Source of Paleo: OPERATOR 16849 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14747 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 427084059700 **Rkb Elevation:** 101 **Sample Range:** 7750 - 16849 Paleo Report Num: 1 of 2 Water Depth: 52 Public Info Code: Y 22-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
7750 / 7750	DEF	AT first sample examined	DEF	AT	3
7780 / 7780	POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
8550 / 8550	POS	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	3
9298 / 9295	POS	AT maximum flooding surface	DEF	AT	3
9299 / 9296	DEF	AT Middle Miocene (Serravallian) Robulus 5 / 55	DEF	AT	3
9300 / 9297	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	3
9480 / 9473	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	3
9629 / 9618	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	3
9630 / 9619	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	3
9850 / 9831	POS	AT maximum flooding surface	DEF	AT	4
9960 / 9936	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	AT	4
10140 / 10105	DEF	AT faunal change (no faunal increase)	DEF	AT	3
10230 / 10190	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	3
10290 / 10246	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	3
10800 / 10717	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	4
10918 / 10823	POS	AT maximum flooding surface	DEF	AT	4
10919 / 10823	DEF	AT Middle Miocene (Langhian) Globorotalia siakensis (coiling change left/right)	DEF	AT	4
10920 / 10824	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	4
11190 / 11060	POS	AT maximum flooding surface	DEF	AT	4
11280 / 11136	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	4
11430 / 11260	DEF	AT	DEF	AT	3
11730 / 11500	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	3

GEOLOGIC

737

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 1 Date of Summary: 06-JAN-2005 First Sample Examined: 7750 Lease Number: G25566 Source of Paleo: OPERATOR **Borehole MD:** 16849 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14747 **API Well Number:** 427084059700 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **Rkb Elevation:** 101 Paleo Report Num: 1 of 2 **Sample Range:** 7750 - 16849 52 Water Depth: Public Info Code: Y 22-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	ozone
12450 / 12027	POS	AT maximum flooding surface	DEF	AT	3
13800 / 12954	POS	AT maximum flooding surface	DEF	AT	3
14790 / 13540	DEF	AT Middle Miocene (Langhian) Cibicides 38	DEF	AT	3
14840 / 13568	POS	AT maximum flooding surface	DEF	AT	3
14880 / 13591	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	3
16770 / 14699	POS	AT maximum flooding surface	DEF	AT	4
16830 / 14735	DEF	AT Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4	DEF	AT	4
16849 / 14747	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

738

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 1 Date of Summary: 06-JAN-2005 First Sample Examined: 9990 Lease Number: G25566 Source of Paleo: OPERATOR 16849 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14747 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 427084059700 **Rkb Elevation:** 101 Paleo Report Num: 2 of 2 **Sample Range:** 9990 - 16849 52 Water Depth: Public Info Code: Y 22-FEB-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9990 / 9964	DEF AT first sample examined	DEF AT
9991 / 9965	DEF IN Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF AT
10530 / 10470	POS AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF AT
10890 / 10798	POS IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF AT
11009 / 10903	DEF AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF AT
11010 / 10904	DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF AT
11190 / 11060	DEF AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF AT
11520 / 11333	DEF AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF AT
16500 / 14537	POS AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF AT
16849 / 14747	DEF AT last sample examined	DEF AT

GEOLOGIC

PAGE: 739

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 7 Date of Summary: 17-SEP-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15781 **Borehole MD:** 11110 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 11006 **Drilling Operator: PERENCO INC API Well Number:** 427084047600 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 62 Water Depth: Public Info Code: Y 04-APR-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5105 / 5007	DEF AT	Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
6825 / 6722	DEF AT	Upper Miocene (Tortonian) Textularia "L"	DEF	AT
8927 / 8824	DEF IN	Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 740

**Borehole MD:** 

0

15242

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 7 Date of Summary: 29-NOV-2000 First Sample Examined:

Lease Number: G15781 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD: 13997

API Well Number: 427084052100 Drilling Operator: MARINER GULF OF MEXICO LLC Rkb Elevation: 93

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 49

Public Info Code: Y 04-APR-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

12695 / 11915 DEF AT Middle Miocene (Langhian) Robulus "L" / 43 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 741

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 7 Date of Summary: 05-JUL-2001 First Sample Examined: 0 Lease Number: G15781 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) 16580 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 15071 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number: 427084053300 Rkb Elevation:** 93 0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 49

Public Info Code: Y 04-APR-2008 Ecozone Eq MMS:

Remark:

 MD / TVD
 Paleo Top Description
 Ecozone

 11825 / 11823
 DEF
 AT Middle Miocene (Langhian) Robulus "L" / 43
 DEF
 AT

 13556 / 13384
 DEF
 AT Lower Miocene (Burdigalian) Robulus 54B
 DEF
 AT

GEOLOGIC 02-FEB-2011

742

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 119 3306 Date of Summary: 18-JUN-2009 First Sample Examined: Lease Number: G26519 Source of Paleo: OPERATOR 28404 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28382 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 427084062600 **Rkb Elevation:** 148 Paleo Report Num: 1 of 1 **Sample Range:** 3306 - 28400 Water Depth: 100 Public Info Code: Y 31-JAN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
3306 / 3306	DEF	AT first sample examined	DEF	AT	1
3780 / 3780	POS	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	ΑT	1
3900 / 3900	POS	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	ΑT	2
3960 / 3960	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	ΑT	2
4650 / 4650	DEF	AT	DEF	ΑT	3
4710 / 4710	POS	IN Upper Pliocene (Gelasian) Discoaster surculus	DEF	ΑT	3
5520 / 5520	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	3
5580 / 5580	POS	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	ΑT	3
5700 / 5700	POS	IN Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	ΑT	3
6090 / 6090	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	ΑT	4
6120 / 6120	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	ΑT	4
6178 / 6178	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	ΑT	5
6179 / 6179	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	5
6180 / 6180	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	ΑT	5
6208 / 6208	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	ΑT	6
6209 / 6209	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
6210 / 6210	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	ΑT	6
6240 / 6240	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	ΑT	6
6270 / 6270	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	ΑT	6
6300 / 6300	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	ΑT	6
6330 / 6330	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	ΑT	6
6360 / 6360	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	ΑT	6

GEOLOGIC 02-FEB-2011 PAGE: 743

Water Depth:

Paleo ID:

100

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:HIA 119Date of Summary:18-JUN-2009First Sample Examined:3306Lease Number:G26519Source of Paleo:OPERATORBorehole MD:28404Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:28382

API Well Number: 427084062600 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 148

Paleo Report Num: 1 of 1 Sample Range: 3306 - 28400

Public Info Code: Y 31-JAN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ecozone	<u>!</u>
6450 / 6450	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT 6	
6510 / 6510	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT 6	
6690 / 6690	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT 6	
6750 / 6750	DEF	AT Cyclammina cancellata (local marker)	DEF	AT 6	
6780 / 6780	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT 6	
6900 / 6900	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT 6	
6930 / 6930	DEF	AT faunal change (no faunal increase)	DEF	AT 5	
7230 / 7230	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT 5	
7440 / 7440	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT 5	
7830 / 7830	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT 5	
8069 / 8069	POS	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT 5	
8070 / 8070	POS	IN Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT 5	
8190 / 8190	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT 5	
8220 / 8220	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT 5	
9150 / 9150	DEF	AT Upper Miocene (Tortonian) Reticulofenestra pseudoumbilica "C"	DEF	AT 5	
9180 / 9180	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT 5	
9240 / 9240	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT 5	
9270 / 9270	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT 5	
9810 / 9810	POS	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT 5	
9840 / 9840	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT 5	
10020 / 10020	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT 5	
10560 / 10560	DEF	AT	DEF	AT 4	
11100 / 11100	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT 4	
11250 / 11250	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT 4	

GEOLOGIC 02-FEB-2011 PAGE: 744

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:HIA 119Date of Summary:18-JUN-2009First Sample Examined:3306Lease Number:G26519Source of Paleo:OPERATORBorehole MD:28404Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:28382

Well Name: 001 Paleo Done By: PALEO-DATA, INC. Borenole TVD: 28382

Well Number: 427084062600 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 148

API Well Number: 427084062600 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 148

Paleo Report Num: 1 of 1 Sample Range: 3306 - 28400 Water Depth: 100

Public Info Code: Y 31-JAN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			Ecozone
11310 / 11310	POS	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
11520 / 11520	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
11550 / 11550	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	5
12540 / 12540	POS	IN Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
12720 / 12720	POS	IN Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT	5
12870 / 12870	DEF	AT	DEF	AT	6
13020 / 13020	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	6
13710 / 13710	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
13740 / 13740	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	6
14250 / 14250	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	6
14429 / 14429	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	6
14430 / 14430	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
14610 / 14610	POS	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	5
14685 / 14685	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	5
14820 / 14820	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	5
15359 / 15359	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	5
15360 / 15360	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	5
15570 / 15570	POS	IN Upper Oligocene (Chattian) Sphenolithus ciperoensis (very rare)	DEF	AT	5
15720 / 15720	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	5
15809 / 15809	POS	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT	5
15810 / 15810	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
15870 / 15870	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT	5
16020 / 16020	POS	AT Upper Oligocene (Chattian) Marginulina texana	DEF	AT	5
16170 / 16170	DEF	AT Upper Oligocene (Chattian) Bolivina mexicana	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 745

Water Depth:

Paleo ID:

100

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 119 Date of Summary: 18-JUN-2009 First Sample Examined: 3306 Lease Number: G26519 Source of Paleo: OPERATOR **Borehole MD:** 28404 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28382 **Drilling Operator:** BP EXPLORATION & PRODUCTION INC **API Well Number:** 427084062600 **Rkb Elevation:** 148

Paleo Report Num: 1 of 1 Sample Range: 3306 - 28400

Public Info Code: Y 31-JAN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	Ecozone
16200 / 16200	DEF	AT	DEF	AT	4
16830 / 16830	DEF	AT Lower Oligocene (Rupelian) Chiloguembelina cubensis	DEF	AT	4
16920 / 16920	POS	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	AT	4
17160 / 17160	DEF	AT	DEF	AT	3
18360 / 18360	DEF	AT	DEF	AT	4
19350 / 19350	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT	4
19860 / 19859	POS	IN Lower Oligocene (Rupelian) Nodosaria blanpiedi	DEF	AT	4
20010 / 20009	POS	AT local marker floral increase	DEF	AT	4
20520 / 20519	DEF	AT	DEF	AT	5
20580 / 20579	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT	5
20610 / 20609	POS	IN Lower Oligocene (Rupelian) Anomalina bilateralis	DEF	ΑT	5
20640 / 20639	POS	AT Lower Oligocene (Rupelian) Cibicides pippeni	DEF	ΑT	5
20730 / 20729	POS	AT Lower Oligocene (Rupelian) Globorotalia increbescens	DEF	AT	5
20790 / 20789	POS	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT	5
20880 / 20879	POS	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	AT	5
21150 / 21149	DEF	AT salt	DEF	AT	5
21300 / 21299	DEF	AT base of salt	DEF	AT	5
21418 / 21417	DEF	AT radiolarians	DEF	AT	5
21419 / 21418	DEF	AT Middle Eocene (Bartonian) Sphenolithus radians	DEF	ΑT	5
21420 / 21419	DEF	AT Middle Eocene (Bartonian) Acarinina broedermanni	DEF	ΑT	5
21480 / 21479	DEF	AT Middle Eocene (Lutetian) Sphenolithus spiniger	DEF	ΑT	5
21510 / 21509	POS	AT Middle Eocene (Lutetian) Morozovella aragonensis	DEF	ΑT	5
21689 / 21688	POS	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	ΑT	5
21690 / 21689	POS	AT Lower Eocene (Ypresian) Morozovella quetra	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 746

Paleo ID:

100

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 119Date of Summary: 18-JUN-2009First Sample Examined: 3306Lease Number: G26519Source of Paleo: OPERATORBorehole MD: 28404Well Name: 001Paleo Done By: PALEO-DATA, INC.Borehole TVD: 28382

API Well Number: 427084062600 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 148

Paleo Report Num: 1 of 1 Sample Range: 3306 - 28400 Water Depth:

Public Info Code: Y 31-JAN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
21720 / 21719	DEF	IN Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT	5
22080 / 22079	DEF	AT out-of-place section	DEF	AT	5
22650 / 22648	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
22710 / 22708	POS	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	5
22770 / 22768	POS	AT Lower Oligocene (Rupelian) Cibicides pippeni	DEF	AT	5
23040 / 23037	POS	IN Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT	5
23280 / 23276	POS	AT Lower Oligocene (Rupelian) Ismolithus recurvus	DEF	AT	5
23460 / 23455	POS	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	AT	5
23490 / 23484	POS	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT	5
23520 / 23514	POS	AT Upper Eocene (Priabonian) Globorotalia pomeroli	DEF	AT	5
23550 / 23544	DEF	AT local marker floral increase	DEF	AT	5
23610 / 23604	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	AT	5
23760 / 23753	POS	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	5
23820 / 23812	POS	AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	AT	5
23880 / 23872	POS	AT Middle Eocene (Bartonian) Nonionella cockfieldensis	DEF	AT	5
24090 / 24081	DEF	AT Middle Eocene (Bartonian) Morozovella lehneri	DEF	AT	5
24960 / 24946	DEF	AT Upper Eocene (Priabonian) Sphenolithus obtusus	DEF	AT	5
24999 / 24984	POS	AT Middle Eocene (Bartonian) Truncorotaloides topilensis	DEF	AT	5
25000 / 24985	POS	AT Middle Eocene (Bartonian) Orbulinoides beckmanni	DEF	AT	5
25229 / 25213	POS	IN Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT	5
25230 / 25214	POS	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	5
25260 / 25244	DEF	AT Middle Eocene (Bartonian) Chiasmolithus solitus	DEF	AT	5
25348 / 25332	DEF	AT Middle Eocene (Bartonian) Subbotina frontosa	DEF	AT	5
25349 / 25333	POS	AT Middle Eocene (Bartonian) Acarinina broedermanni	DEF	AT	5

GEOLOGIC 02-FEB-2011

747

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 119 Date of Summary: 18-JUN-2009 First Sample Examined: 3306 Lease Number: G26519 Source of Paleo: OPERATOR **Borehole MD:** 28404 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28382 **Drilling Operator:** BP EXPLORATION & PRODUCTION INC **API Well Number:** 427084062600 **Rkb Elevation:** 148 Paleo Report Num: 1 of 1 **Sample Range:** 3306 - 28400 100 Water Depth:

Cample Range. 3300 25400

Public Info Code: Y 31-JAN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco:	zone
25350 / 25334	POS	AT Middle Eocene (Lutetian) Morozovella aragonensis	DEF	AT	5
25590 / 25573	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	AT	5
25620 / 25603	DEF	AT radiolarians	DEF	AT	5
25798 / 25780	DEF	AT Lower Eocene (Ypresian) Tribrachiatus orthostylus	DEF	AT	5
25799 / 25781	POS	AT Lower Eocene (Ypresian) Acarinina soldadoensis	DEF	AT	5
25800 / 25782	POS	AT Lower Eocene (Ypresian) Acarinina angulosa	DEF	AT	5
25830 / 25812	DEF	AT Lower Eocene (Ypresian) Morozovella rex / subbotinae	DEF	AT	5
25920 / 25901	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT	5
25950 / 25931	DEF	AT local marker floral decrease	DEF	AT	5
26070 / 26051	DEF	AT Lower Eocene (Ypresian) Morozovella acuta	DEF	AT	5
27330 / 27309	POS	AT Upper Paleocene (Thanetian) Cruciplacolithus tenuis (increase)	DEF	AT	5
28400 / 28378	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

748

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 382 Date of Summary: 19-AUG-1998 First Sample Examined: 3540 Lease Number: G02393 Source of Paleo: OPERATOR **Borehole MD:** 12038 Well Name: F016 Paleo Done By: GEORGE J. CONSTANCE, JR. **Borehole TVD:** 5812 Drilling Operator: MOBIL PRODUCING TEXAS & NEW ME **API Well Number:** 427114066805 **Rkb Elevation:** 112 Paleo Report Num: 1 of 1 **Sample Range:** 3540 - 11970 342 Water Depth: Public Info Code: Y 24-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

<u>MD/</u>	TVD		Paleo Top Description		Ecoz	<u>zone</u>
3540 /	2705	DEF	AT first sample examined	DEF	AT	
3989 /	2821	DEF	AT reworked material	DEF	AT	
3990 /	2821	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	
5250 /	3123	DEF	AT local marker foram increase	DEF	AT	
8460 /	3848	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	IN	3
8850 /	3967	DEF	AT local marker foram increase	DEF	IN	3
8910 /	3988	DEF	AT faunal change (no faunal increase)	DEF	AT	2
8970 /	4008	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	2
10140 /	4559	POS	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	2
11970 /	5758	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011 PAGE: 749

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 382 Date of Summary: 03-APR-1998 First Sample Examined: 5747 Lease Number: G02393 Source of Paleo: OPERATOR **Borehole MD:** 8740 Well Name: F023 Paleo Done By: GEORGE J. CONSTANCE, JR. **Borehole TVD:** 7886 Drilling Operator: MOBIL PRODUCING TEXAS & NEW ME **API Well Number:** 427114069302 **Rkb Elevation:** 112 Paleo Report Num: 1 of 1 **Sample Range:** 5747 - 8740 347 Water Depth: Public Info Code: Y 03-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD/TVD		Paleo Top Description		<b>Ecozone</b>
5747 / 5101	DEF	AT first sample examined	DEF A	T 2
5790 / 5133	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF A	.T 2
5940 / 5246	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF A	.T 3
6210 / 5466	DEF	AT local marker foram increase	DEF A	.T 3
6570 / 5778	DEF	AT local marker foram increase	DEF A	.T 3
6930 / 6102	DEF	AT local marker foram increase	DEF A	.T 3
8740 / 7886	DEF	AT last sample examined	DEF A	.T 3

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 750

7751

147

**Borehole TVD:** 

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 415Date of Summary: 13-APR-1998First Sample Examined: 0Lease Number: G15793Source of Paleo: COMPLETION REPORT (WELL SUMMARY)Borehole MD: 8204

Well Name: B002 Paleo Done By: OPERATOR

API Well Number: 427094104300 Drilling Operator: TANA OIL AND GAS CORPORATION Rkb Elevation: 109

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 25-FEB-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

7400 / 7104 DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE: 751

0

7451

6922

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 416

Date of Summary: 03-OCT-2001

First Sample Examined:

Completion Report (Well Summary)

Borehole MD:

Paleo Done By: OPERATOR

Borehole TVD:

Drilling Operator: UNION OIL COMPANY OF CALLEORNIA

Publication:

API Well Number: 427094101801 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 97
Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 138

Public Info Code: Y 30-APR-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVDPaleo Top DescriptionEcozone6950 / 6505DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispiraDEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 752

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 416

Date of Summary: 22-SEP-2000

Lease Number: G15794

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A003

Paleo Done By: OPERATOR

Borehole MD: 7431

Public Number: 427094109200

Drilling Operator: UNION OIL COMPANY OF CALIFORNIA

Rkb Flevation: 117

API Well Number: 427094109200 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 117
Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 139

Public Info Code: Y 30-APR-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

8659 / 6140 DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE:

753

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 416	Date of Summary: 24-JUN-1999	First Sample Examined:	0
Lease Number: G15794	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	8768
Well Name: C001	Paleo Done By: OPERATOR	Borehole TVD:	7078
API Well Number: 427094106400	<b>Drilling Operator:</b> TANA OIL AND GAS CORPORATION	Rkb Elevation:	106
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	133
Public Info Code: Y 30-APR-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u> </u>		Paleo Top Description		<u>Ecozone</u>
3400 / 3342	DE	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT
4100 / 3930	DE	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT
7050 / 5928	DE	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 754

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 416	Date of Summary: 17-DEC-1999	First Sample Examined:	0
Lease Number: G15794	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	7501
Well Name: C002	Paleo Done By: OPERATOR	Borehole TVD:	7181
API Well Number: 427094106600	Drilling Operator: TANA OIL AND GAS CORPORATION	Rkb Elevation:	106
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	138
Public Info Code: Y 30-APR-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD/TVD		Paleo Top Description		<u>Ecozone</u>
3150 / 3149	DE	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT
4900 / 4891	DE	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT
6300 / 6145	DE	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 755

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 521 Date of Summary: 08-AUG-2001 First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G17190 **Borehole MD:** 6032 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 4852

**Drilling Operator:** NEWFIELD EXPLORATION COMPANY **API Well Number:** 427094109000 **Rkb Elevation:** 81 242 Water Depth:

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u> </u>	Paleo Top Description	<u>Ecozone</u>
4016 / 3578	DEF IN Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
5302 / 4375	DEF IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 756

4890

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: HI A 521 Date of Summary: 09-MAY-2001 First Sample Examined: 0

Lease Number: G17190 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name:B001Paleo Done By:OPERATORBorehole TVD:4701

API Well Number: 427094109500 Drilling Operator: NEWFIELD EXPLORATION COMPANY Rkb Elevation: 94

 Paleo Report Num:
 1 of 1
 Sample Range:
 0 - 0
 Water Depth:
 231

 Public Info Code:
 Y 27-SEP-2010
 Ecozone Eq MMS:
 Paleo ID:
 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

3801 / 3760 DEF IN Lower Pleistocene (Calabrian) Angulogerina "B" DEF AT

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 757

257

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 554 Date of Summary: 23-OCT-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G21356 **Borehole MD:** 5950 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 5950 Drilling Operator: CHIEFTAIN INTERNATIONAL US INC **API Well Number:** 427094110400 **Rkb Elevation:** 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 03-JAN-2011 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD/TVD	Paleo Top Description	<u>Ecozone</u>
2950 / 2950	DEF IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF AT
5504 / 5504	DEF IN Middle Pleistocene (Ionian) Trimosina "A"	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 758

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 568 Date of Summary: 01-JUN-2005 First Sample Examined: 8860 Lease Number: G02716 Source of Paleo: OPERATOR **Borehole MD:** 12651 Well Name: A019 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 11693 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 427094115100 **Rkb Elevation:** 134 Paleo Report Num: 1 of 1 **Sample Range:** 8860 - 12610 271 Water Depth: Public Info Code: Y 29-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecoz	one
8860 / 8307	DEF	AT first sample examined	DEF	AT	4
8861 / 8308	DEF	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
9010 / 8441	DEF	AT	POS	AT	4
9100 / 8521	DEF	AT	DEF	IN	3
9250 / 8656	DEF	AT	DEF	AT	4
9280 / 8683	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	4
9400 / 8791	DEF	AT	DEF	AT	5
9430 / 8818	DEF	AT	DEF	AT	4
9460 / 8845	DEF	AT	POS	AT	4
9550 / 8926	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	POS	AT	4
9970 / 9302	DEF	AT	DEF	AT	3
10180 / 9490	DEF	AT	DEF	IN	3
10240 / 9544	DEF	AT	DEF	AT	3
10660 / 9923	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
10870 / 10114	DEF	AT	DEF	AT	4
10930 / 10169	DEF	AT	POS	AT	4
10960 / 10196	DEF	AT	DEF	AT	3
11020 / 10251	DEF	AT	POS	IN	2
11200 / 10414	DEF	AT	POS	AT	2
11320 / 10523	DEF	AT	POS	IN	2
11350 / 10550	DEF	AT	DEF	IN	3
11380 / 10577	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	POS	AT	4

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

759

Fcozone

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 568 8860 Date of Summary: 01-JUN-2005 First Sample Examined: Lease Number: G02716 Source of Paleo: OPERATOR 12651 **Borehole MD:** Well Name: A019 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 11693 **API Well Number:** 427094115100 **Drilling Operator: STONE ENERGY CORPORATION Rkb Elevation:** 134 **Sample Range:** 8860 - 12610 271 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 29-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD/IVD		Paleo Top Description		Ecozone	
11410 / 10604	DEF	AT	DEF	IN 3	
11500 / 10685	DEF	AT	POS	AT 4	
11530 / 10712	DEF	AT	DEF	IN 3	
12070 / 11192	DEF	AT local marker foram increase	DEF	IN 3	
12230 / 11332	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN 3	
12340 / 11428	DEF	AT	POS	AT 4	
12370 / 11454	DEF	AT	DEF	AT 4	
12400 / 11480	DEF	AT	POS	AT 4	
12430 / 11505	DEF	AT	DEF	AT 4	
12460 / 11531	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT 5	
12520 / 11582	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT 5	
12550 / 11608	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT 5	
12610 / 11658	DEF	AT last sample examined	DEF	AT 5	

Paleo Ton Description

GEOLOGIC 02-FEB-2011 PAGE: 760

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 568 Date of Summary: 02-JUN-2005 First Sample Examined: 7990 Lease Number: G25599 Source of Paleo: OPERATOR **Borehole MD:** 12445 Well Name: A018 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 10353 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 427094114800 **Rkb Elevation:** 134 Paleo Report Num: 1 of 1 **Sample Range:** 7990 - 12430 271 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD/T	<u>VD</u>	Paleo Top Description		Ecoz	<u>zone</u>
7990 / 6	6703 DEF	AT first sample examined	DEF	IN	3
7991 / 6	6704 DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	IN	3
8050 / 6	6751 DEF	AT	POS	AT	4
8120 / 6	6807 DEF	AT	DEF	IN	3
8260 / 6	6917 DEF	AT	POS	AT	4
8560 / 7	7160 DEF	AT	DEF	AT	3
8770 / 7	7326 DEF	AT	POS	AT	3
8890 / 7	7419 POS	AT local marker foram increase	DEF	IN	3
9070 / 7	7557 DEF	AT local marker foram increase	POS	AT	4
9190 / 7	7650 DEF	AT	DEF	IN	3
10090 / 8	8393 DEF	AT local marker foram increase	POS	AT	4
10180 / 8	8469 DEF	AT Lower Pleistocene (Calabrian) Angulogerina magna	POS	AT	4
10240 / 8	8520 DEF	AT	DEF	IN	3
10360 / 8	8622 DEF	AT	POS	AT	4
10390 / 8	8648 DEF	AT	DEF	IN	3
10720 / 8	8928 DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	POS	AT	4
10840 / 9	9028 DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	4
11080 / 9	9227 DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
11200 / 9	9328 DEF	AT	DEF	AT	3
11410 / 9	9502 DEF	AT	POS	AT	4
12430 / 10	0343 DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 761

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 569 7980 Date of Summary: 16-AUG-2005 First Sample Examined: Lease Number: G25599 Source of Paleo: OPERATOR **Borehole MD:** 10238 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 10238 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 427094115200 **Rkb Elevation:** 107 **Sample Range:** 7980 - 10238 Paleo Report Num: 1 of 1 271 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / T	<u>VD</u>	Paleo Top Description		Eco	zone
7980 / 7	7979 DEF	AT first sample examined	DEF	AT	2
7981 / 7	7980 DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	2
8370 / 8	3369 POS	AT local marker foram increase	DEF	AT	3
8430 / 8	3429 DEF	AT	DEF	IN	2
8490 / 8	3489 DEF	AT local marker foram increase	DEF	AT	3
8550 / 8	3549 DEF	AT	DEF	IN	2
8670 / 8	3669 DEF	AT	DEF	AT	3
8730 / 8	3729 DEF	AT local marker benthic foram increase	POS	AT	4
8790 / 8	3789 DEF	AT	DEF	IN	3
8940 / 8	3939 DEF	AT	POS	AT	4
8970 / 8	3969 DEF	AT	DEF	IN	3
9120 / 9	9119 DEF	AT	DEF	AT	3
9150 / 9	9149 DEF	AT local marker planktic foram increase	DEF	AT	3
9180 / 9	9179 DEF	AT	DEF	IN	2
9240 / 9	9239 DEF	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	AT	3
9300 / 9	9299 DEF	AT	DEF	IN	2
9360 / 9	9359 DEF	AT	DEF	AT	2
9420 / 9	9419 DEF	AT	DEF	IN	2
9570 / 9	9569 DEF	AT	POS	AT	4
9630 / 9	9629 DEF	AT	DEF	IN	3
9669 / 9	9668 DEF	AT Lower Pleistocene (Calabrian) Globorotalia tosaensis tosaensis	DEF	IN	3
9670 / 9	9669 DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	3

**GEOLOGIC** 02-FEB-2011

762

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 569 Date of Summary: 16-AUG-2005 First Sample Examined: 7980 10238 Lease Number: G25599 Source of Paleo: OPERATOR **Borehole MD:** Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 10238 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 427094115200 **Rkb Elevation:** 107 Paleo Report Num: 1 of 1 **Sample Range:** 7980 - 10238 271 Water Depth:

Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Ec	ozone
9839 / 9838	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	POS	AT	4
9840 / 9839	POS	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	POS	AT	4
9870 / 9869	DEF	AT	DEF	AT	4
9900 / 9899	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9930 / 9929	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	AT	4
10020 / 10019	DEF	AT	POS	AT	4
10050 / 10049	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	POS	AT	4
10110 / 10109	DEF	AT	DEF	AT	4
10140 / 10139	DEF	AT	DEF	IN	3
10228 / 10227	DEF	AT last sample examined	POS	IN	3

GEOLOGIC 02-FEB-2011 PAGE: 763

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 569 Date of Summary: 16-AUG-2005 First Sample Examined: 9566 Lease Number: G25599 Source of Paleo: OPERATOR **Borehole MD:** 12500 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 12497 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 427094115201 **Rkb Elevation:** 107 Paleo Report Num: 1 of 1 **Sample Range:** 9566 - 12500 271 Water Depth: Public Info Code: Y 31-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD	-	Paleo Top Description		<u>E</u>	cozone
9566 / 9565	DEF	AT first sample examined	DEF	IN	3
9590 / 9589	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
9617 / 9616	DEF	AT	DEF	IN	3
9680 / 9679	DEF	AT	DEF	IN	2
9770 / 9769	DEF	AT	DEF	IN	3
9800 / 9799	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
9830 / 9828	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
9890 / 9888	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
9950 / 9948	DEF	AT	DEF	AT	4
10040 / 10037	DEF	AT	POS	AT	4
10070 / 10067	POS	AT local marker foram increase	DEF	AT	4
10130 / 10127	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	POS	AT	4
10290 / 10287	DEF	AT	DEF	IN	3
10410 / 10407	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
10851 / 10848	DEF	AT	DEF	AT	4
10949 / 10946	DEF	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	4
10950 / 10947	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	4
10980 / 10977	DEF	AT	DEF	IN	3
11190 / 11187	DEF	AT	POS	AT	4
11220 / 11217	DEF	AT	DEF	IN	3
11340 / 11337	DEF	AT	POS	AT	4
11370 / 11367	DEF	AT	DEF	IN	3

GEOLOGIC 02-FEB-2011 PAGE: 764

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: HI A 569 Date of Summary: 16-AUG-2005 First Sample Examined: 9566 Lease Number: G25599 Source of Paleo: OPERATOR **Borehole MD:** 12500 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 12497 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 427094115201 **Rkb Elevation:** 107 Paleo Report Num: 1 of 1 **Sample Range:** 9566 - 12500 271 Water Depth:

Public Info Code: Y 31-OCT-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
11393 / 11390	DEF	AT	POS	AT	4
11400 / 11397	DEF	AT	DEF	IN	3
11490 / 11487	DEF	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	POS	AT	4
11519 / 11516	DEF	AT Eggerella sp. (local marker)	POS	ΑT	4
11520 / 11517	DEF	AT Cyclammina cancellata (local marker)	POS	ΑT	4
11610 / 11607	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	ΑT	5
11640 / 11637	DEF	AT	DEF	ΑT	4
11670 / 11667	DEF	AT Cyclammina sp. (local marker)	POS	ΑT	4
11723 / 11720	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	POS	ΑT	4
11912 / 11909	DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	ΑT	4
11940 / 11937	DEF	AT local marker benthic foram increase	DEF	ΑT	4
12000 / 11997	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	ΑT	4
12030 / 12027	DEF	AT	DEF	ΑT	5
12057 / 12054	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
12058 / 12055	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	ΑT	5
12059 / 12056	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	5
12060 / 12057	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
12120 / 12117	DEF	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	ΑT	5
12240 / 12237	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
12500 / 12497	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

765

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 9804 Date of Summary: 01-OCT-2008 First Sample Examined: Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 **Sample Range:** 9804 - 19250 Paleo Report Num: 1 of 4 Water Depth: 6397 Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Bass Prospect, suprasalt foram report, expanded section noted between 13850 and 14620, foram species abundance and diversity chart available, see

report for details

<u>MD / TVD</u>		Paleo Top Description		ļ	<u>Ecozone</u>
9804 / 9804	DEF	AT first sample examined	POS	AT	6
9805 / 9805	DEF	AT transported outer shelf facies	POS	AT	6
10160 / 10160	POS	IN Middle Pleistocene (Ionian) Trimosina "A"	POS	AT	6
10789 / 10789	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	6
10790 / 10790	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	6
11060 / 11060	DEF	AT transported outer shelf facies	POS	AT	6
11418 / 11418	DEF	AT pyrite	DEF	ΑT	6
11419 / 11419	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	6
11420 / 11420	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	ΑT	6
11508 / 11508	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	ΑT	6
11509 / 11509	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	6
11510 / 11510	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	6
11599 / 11599	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	ΑT	6
11600 / 11600	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	6
11780 / 11780	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
11869 / 11869	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	ΑT	6
11870 / 11870	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	6
11960 / 11960	DEF	AT Upper Miocene (Tortonian) Cibicides inflata	DEF	ΑT	6
12140 / 12140	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	6
12408 / 12408	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	6
12409 / 12409	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

766

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 01-OCT-2008 First Sample Examined: 9804 Lease Number: G19600 Source of Paleo: OPERATOR **Borehole MD:** 29663 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86

> Paleo Report Num: 1 of 4 Sample Range: 9804 - 19250 Water Depth: 6397

Public Info Code: Y 22-JUL-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			Eco:	zone
12410 / 12410	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	: Þ	AΤ	6
12500 / 12500	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	: 4	<b>ΑΤ</b>	6
12590 / 12590	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	: 4	<b>ΑΤ</b>	6
12679 / 12679	DEF	AT transported shelf fauna	POS	3 A	<b>ΑΤ</b>	6
12680 / 12680	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	POS	3 A	<b>ΑΤ</b>	6
12860 / 12860	DEF	AT transported shelf fauna	POS	3 A	AΤ	5
13040 / 13040	DEF	AT deepwater facies Harang	POS	3 A	AΤ	5
13220 / 13220	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	: 4	AΤ	5
13310 / 13310	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	: Þ	<b>ΑΤ</b>	5
13400 / 13400	DEF	AT local marker planktic foram increase	DEF	: Þ	<b>ΑΤ</b>	5
13490 / 13490	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	. 4	<b>ΑΤ</b>	5
13580 / 13580	DEF	AT local marker foram decrease	DEF	. 4	<b>ΑΤ</b>	5
13850 / 13850	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	. 4	<b>ΑΤ</b>	6
14170 / 14170	DEF	AT Lower Miocene (Aquitanian) Globigerina angulisuturalis	DEF	: 11	N	6
14439 / 14439	DEF	AT foram flood	DEF	: 11	N	6
14440 / 14440	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	: 11	N	6
14620 / 14620	DEF	AT local marker planktic foram increase	DEF	: 11	N	6
15069 / 15069	DEF	AT Upper Oligocene (Chattian) Globorotalia opima nana	DEF	: 11	N	6
15070 / 15070	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	: 11	N	6
15250 / 15250	DEF	AT radiolarians	DEF	: 11	N	6
15430 / 15430	DEF	AT Lower Oligocene (Rupelian) Anomalina bilateralis	DEF	: 11	N	6
15610 / 15610	DEF	AT Lower Oligocene (Rupelian) Chiloguembelina cubensis	DEF	: 11	N	6
15700 / 15700	DEF	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	; II	N	6
15880 / 15879	DEF	AT local marker foram decrease	DEF	; II	N	6

GEOLOGIC 02-FEB-2011 PAGE: 767

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 01-OCT-2008 First Sample Examined: 9804 Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 **Sample Range:** 9804 - 19250 6397 Paleo Report Num: 1 of 4 Water Depth:

Public Info Code: Y 22-JUL-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
15969 / 15968	DEF	AT transported shelf fauna	POS	AT	6
15970 / 15969	DEF	AT Lower Oligocene (Rupelian) Textularia warreni	DEF	AT	6
16150 / 16149	DEF	AT Lower Oligocene (Rupelian) Cibicides pippeni	DEF	AT	6
16420 / 16419	DEF	AT Lower Oligocene (Rupelian) Pseudohastigerina micra	DEF	IN	6
16599 / 16598	DEF	AT Upper Eocene (Priabonian) Hantkenina alabamensis	DEF	IN	6
16600 / 16599	DEF	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	IN	6
16779 / 16778	DEF	AT foram flood	DEF	IN	6
16780 / 16779	DEF	AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	IN	6
16870 / 16869	DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	AT	7
17230 / 17229	DEF	AT	DEF	ΑT	6
17679 / 17678	DEF	AT Middle Eocene (Bartonian) Truncorotaloides rohri	DEF	ΑT	6
17680 / 17679	DEF	AT Middle Eocene (Bartonian) Morozovella lehneri	DEF	ΑT	6
18220 / 18219	DEF	AT reworked material	DEF	IN	6
18489 / 18488	DEF	AT foram flood	DEF	ΑT	7
18490 / 18489	DEF	AT Middle Eocene (Bartonian) Truncorotaloides topilensis	DEF	ΑT	7
18579 / 18578	DEF	AT Middle Eocene (Bartonian) Orbulinoides beckmanni	DEF	ΑT	7
18580 / 18579	DEF	AT Middle Eocene (Bartonian) Acarinina broedermanni	DEF	ΑT	7
18670 / 18669	DEF	AT Middle Eocene (Lutetian) Morozovella aragonensis	DEF	ΑT	7
18760 / 18759	DEF	AT Lower Eocene (Ypresian) Morozovella quetra	DEF	ΑT	7
18820 / 18819	DEF	AT	DEF	IN	6
18909 / 18908	DEF	AT Lower Eocene (Ypresian) Globorotalia wilcoxensis	DEF	IN	6
18910 / 18909	DEF	AT Lower Eocene (Ypresian) Morozovella acuta	DEF	IN	6
18970 / 18969	DEF	AT out-of-place section	DEF	IN	6
19020 / 19019	POS	AT Upper Cretaceous Maastrichtian Stage	DEF	IN	6

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 768

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:KC596Date of Summary:01-OCT-2008First Sample Examined:9804Lease Number:G19600G19600G19600Borehole MD:29663

Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Borehole TVD: 29599

API Well Number: 608084001300 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP Rkb Elevation: 86

Paleo Report Num: 1 of 4 Sample Range: 9804 - 19250 Water Depth: 6397

Public Info Code: Y 22-JUL-2009 Ecozone Eq MMS: Y

MD / TVD	Paleo Top Description	<u>Ecozone</u>
19038 / 19037	DEF AT salt	DEF IN 6
19250 / 19249	DEF AT last sample examined	DEF IN 6

GEOLOGIC 02-FEB-2011 PAGE: 769

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 01-OCT-2008 9804 First Sample Examined: Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 Paleo Report Num: 2 of 4 **Sample Range:** 9804 - 19250 Water Depth: 6397 Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Bass Prospect, suprasalt calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9804 / 9804	DEF	AT first sample examined	DEF	AT
9805 / 9805	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9890 / 9890	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10159 / 10159	DEF	IN Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
10160 / 10160	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10699 / 10699	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	AT
10700 / 10700	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11239 / 11239	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
11240 / 11240	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11417 / 11417	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11418 / 11418	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
11419 / 11419	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
11420 / 11420	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11508 / 11508	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
11509 / 11509	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11510 / 11510	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
11599 / 11599	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11600 / 11600	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11689 / 11689	DEF	AT Lower Pliocene (Zanclian) Ceratolithus armatus	DEF	AT
11690 / 11690	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
11780 / 11780	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
11868 / 11868	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 770

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 01-OCT-2008 9804 First Sample Examined: Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 **API Well Number:** 608084001300 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **Rkb Elevation:** 86 Paleo Report Num: 2 of 4 **Sample Range:** 9804 - 19250 6397 Water Depth: Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 003

		Taled Top Description		LCOZOTIE
11869 / 11869	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
11870 / 11870	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
11957 / 11957	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
11958 / 11958	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
11959 / 11959	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
11960 / 11960	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
12139 / 12139	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
12140 / 12140	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
12230 / 12230	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
12320 / 12320	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
12407 / 12407	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	AT
12408 / 12408	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
12409 / 12409	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus (increase)	DEF	AT
12410 / 12410	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
12500 / 12500	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
12589 / 12589	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
12590 / 12590	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
12680 / 12680	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
13310 / 13310	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
13400 / 13400	DEF	AT Middle Miocene (Langhian) Discoaster calculosus	DEF	AT
13490 / 13490	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
13578 / 13578	DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT
13579 / 13579	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
13580 / 13580	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT

This report contains public paleo reports only for the time period stated

**Paleo Top Description** 

GEOLOGIC 02-FEB-2011 PAGE: 771

Paleo ID:

003

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 01-OCT-2008 First Sample Examined: 9804 Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 Paleo Report Num: 2 of 4 **Sample Range:** 9804 - 19250 6397 Water Depth:

Public Info Code: Y 22-JUL-2009 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
14260 / 14260	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	- AT
14440 / 14440	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	- AT
14620 / 14620	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	F AT
14890 / 14890	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	F AT
15250 / 15250	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	F AT
15340 / 15340	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	F AT
15520 / 15520	DEF	AT Lower Oligocene (Rupelian) Discoaster nodifer	DEF	F AT
15790 / 15789	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	F AT
16240 / 16239	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra hillae	DEF	F AT
16509 / 16508	DEF	AT Upper Eocene (Priabonian) Discoaster saipanensis	DEF	F AT
16510 / 16509	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	F AT
16958 / 16957	DEF	AT Middle Eocene (Bartonian) Pemma papillatum	DEF	F AT
16959 / 16958	DEF	AT Middle Eocene (Bartonian) Pemma stradneri	DEF	F AT
16960 / 16959	DEF	AT Middle Eocene (Bartonian) Pemma balium	DEF	F AT
18489 / 18488	DEF	AT Middle Eocene (Bartonian) Sphenolithus radians	DEF	F AT
18490 / 18489	DEF	AT Middle Eocene (Bartonian) Chiasmolithus solitus	DEF	F AT
18670 / 18669	DEF	AT Middle Eocene (Bartonian) Chiasmolithus gigas	DEF	F AT
18760 / 18759	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	F AT
18820 / 18819	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	F AT
18850 / 18849	DEF	AT Lower Eocene (Ypresian) Toweius crassus	DEF	F AT
18909 / 18908	DEF	AT Upper Paleocene (Thanetian) Fasciculithus tympaniformis	DEF	F AT
18910 / 18909	DEF	AT Upper Paleocene (Thanetian) Discoaster diastypus	DEF	F AT
18970 / 18969	DEF	AT out-of-place section	DEF	F AT
19190 / 19189	DEF	AT local marker floral increase	DEF	F AT

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 772

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Well Name: 001

Area Block: KC 596 Date of Summary: 01-OCT-2008 Lease Number: G19600

Source of Paleo: OPERATOR

Paleo Done By: APPLIED BIOSTRATIGRAPHIX

Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300

Paleo Report Num: 2 of 4 **Sample Range:** 9804 - 19250

Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:**  First Sample Examined: 9804 29663 **Borehole MD:** 

**Borehole TVD:** 29599

**Rkb Elevation:** 86

6397 Water Depth: Paleo ID:

003

MD/TVD

**Paleo Top Description** 

**Ecozone** 

DEF AT last sample examined 19250 / 19249

DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

773

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 21100 Date of Summary: 02-JAN-2009 First Sample Examined: Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 **API Well Number:** 608084001300 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **Rkb Elevation:** 86 Paleo Report Num: 3 of 4 **Sample Range:** 21100 - 29672 6397 Water Depth: Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Bass Prospect, subsalt foram report, debrite section encountered between 28650 and 29130, foram species abundance and diversity chart available,

see report for details

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
21100 /21099	DEF	AT first sample examined	POS	AT	6
21101 /21100	DEF	IN gouge	POS	AT	6
21200 / 21199	DEF	AT local marker planktic foram increase	DEF	AT	6
21350 / 21349	DEF	AT foram flood	DEF	IN	6
21410 / 21409	DEF	AT Lower Miocene (Aquitanian) Globigerinoides primordius	DEF	IN	6
21440 / 21439	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	IN	6
21620 / 21619	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	IN	6
21649 / 21648	DEF	AT radiolarians	DEF	IN	6
21650 / 21649	DEF	AT Middle Eocene (Bartonian) Truncorotaloides rohri	DEF	IN	6
21678 / 21677	DEF	AT radiolarians	DEF	IN	6
21679 / 21678	DEF	AT Middle Eocene (Bartonian) Truncorotaloides topilensis	DEF	IN	6
21680 / 21679	DEF	AT Middle Eocene (Bartonian) Globorotalia spinuloinflata	DEF	IN	6
21709 / 21708	DEF	AT foram flood	DEF	IN	6
21710 / 21709	DEF	AT Middle Eocene (Bartonian) Subbotina frontosa	DEF	IN	6
21740 / 21739	DEF	AT foram flood	DEF	IN	6
21950 / 21949	DEF	AT radiolarians	DEF	IN	6
22010 / 22009	DEF	AT Middle Eocene (Bartonian) Acarinina broedermanni	DEF	IN	6
22220 / 22219	DEF	AT radiolarians	DEF	IN	6
22370 / 22369	DEF	AT Middle Eocene (Lutetian) Morozovella aragonensis	DEF	IN	6
22400 / 22399	DEF	AT sample gap top	POS	IN	6
22484 / 22483	DEF	AT sample gap bottom	DEF	IN	6

**GEOLOGIC** 02-FEB-2011 PAGE: 774

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 02-JAN-2009 First Sample Examined: 21100 Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 Paleo Report Num: 3 of 4 **Sample Range:** 21100 - 29672 6397 Water Depth:

Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<b>Ecozone</b>
22485 / 22484	DEF	AT radiolarians	DEF	IN 6
22600 / 22599	DEF	AT cement	DEF	AT
22660 / 22659	DEF	AT pyrite	DEF	AT
22690 / 22689	DEF	AT reworked material	DEF	AT
22779 / 22778	DEF	AT pyrite	DEF	AT
22780 / 22779	DEF	AT Bathysiphon fauna	DEF	AT
22870 / 22869	DEF	AT Bathysiphon fauna	DEF	AT
23140 / 23139	DEF	AT pyrite	DEF	AT
23379 / 23378	DEF	AT Lower Eocene (Ypresian) Globorotalia wilcoxensis	DEF	AT
23380 / 23379	DEF	AT Lower Eocene (Ypresian) Morozovella acuta	DEF	AT
23830 / 23829	DEF	AT pyrite	DEF	AT
24000 / 23999	DEF	AT local marker planktic foram increase	POS	AT
24030 / 24029	DEF	AT pyrite	DEF	AT
24090 / 24089	DEF	AT Bathysiphon fauna	DEF	AT
24150 / 24149	DEF	AT pyrite	DEF	AT
24240 / 24239	DEF	AT Bathysiphon fauna	DEF	AT
24470 / 24469	DEF	AT Upper Paleocene (Thanetian) Morozovella velascoensis	DEF	AT
24630 / 24629	DEF	AT pyrite	DEF	AT
24690 / 24689	DEF	AT Bathysiphon fauna	DEF	AT
25590 / 25589	DEF	AT Bathysiphon fauna	DEF	AT
26820 / 26819	DEF	AT Bathysiphon fauna	DEF	AT
27300 / 27299	POS	AT Upper Paleocene (Thanetian) Subbotina pseudobulloides	DEF	AT
27420 / 27419	DEF	AT Upper Paleocene (Thanetian) Subbotina pseudobulloides	DEF	AT
27450 / 27449	DEF	AT pyrite	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 775

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 02-JAN-2009 First Sample Examined: 21100 Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 Paleo Report Num: 3 of 4 **Sample Range:** 21100 - 29672 6397 Water Depth: Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		Eco	<u>zone</u>
27540 / 27539	DEF	AT Upper Paleocene (Selandian) Globorotalia inconstans	DEF	AT	
27570 / 27569	DEF	AT reworked material	DEF	AT	
27630 / 27629	DEF	AT pyrite	DEF	AT	
27660 / 27658	POS	AT Lower Paleocene (Danian) Globoconusa daubjergensis	DEF	AT	
27990 / 27985	DEF	AT pyrite	DEF	AT	
28110 / 28102	DEF	AT Bathysiphon fauna	DEF	AT	
28440 / 28422	DEF	AT reworked material	DEF	AT	
28590 / 28566	DEF	AT radiolarians	DEF	AT	4
28649 / 28623	DEF	AT limestone	DEF	AT	4
28650 / 28624	DEF	AT local marker benthic foram increase	DEF	AT	4
29130 / 29086	DEF	AT radiolarians	DEF	AT	4
29160 / 29115	DEF	AT local marker benthic foram increase	DEF	AT	4
29190 / 29144	POS	AT Upper Cretaceous (Maastrichtian) Globotruncana lapparenti	DEF	AT	4
29250 / 29201	DEF	AT local marker foram decrease	DEF	AT	4
29672 /	DEF	AT last sample examined	DEF	AT	4

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 776

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 21100 Date of Summary: 02-JAN-2009 First Sample Examined: Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 **API Well Number:** 608084001300 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **Rkb Elevation:** 86 Paleo Report Num: 4 of 4 **Sample Range:** 21100 - 29672 6397 Water Depth: Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Bass Prospect, subsalt calcareous nannofossil report, debrite section encountered between 28650 and 29130, nannospecies abundance and diversity

chart available, see report for details

Pales Ton Description

<u>Ecozone</u>

GEOLOGIC 02-FEB-2011

777

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 596 Date of Summary: 02-JAN-2009 First Sample Examined: 21100 Lease Number: G19600 Source of Paleo: OPERATOR 29663 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 29599 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608084001300 **Rkb Elevation:** 86 Paleo Report Num: 4 of 4 **Sample Range:** 21100 - 29672 6397 Water Depth: Public Info Code: Y 22-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 004

MD / TVD		Paleo Top Description		<u>Ecozone</u>
28649 / 28623	POS	IN Upper Cretaceous (Maastrichtian) Tetralithus trifidus	DEF	AT
28650 / 28624	POS	IN Upper Cretaceous (Campanian) Aspidolithus parcus parcus	DEF	AT
28709 / 28680	POS	IN Upper Cretaceous (Campanian) Eiffellithus eximius	DEF	AT
28710 / 28681	POS	IN Lower Cretaceous (Aptian) Nannoconus steinmanni	DEF	AT
29129 / 29085	DEF	AT Upper Cretaceous (Maastrichtian) Tetralithus trifidus	DEF	AT
29130 / 29086	DEF	AT Upper Cretaceous (Campanian) Aspidolithus parcus parcus	DEF	AT
29160 / 29115	DEF	AT Upper Cretaceous (Campanian) Lithastrinus grillii	DEF	AT
29340 / 29288	DEF	AT Upper Cretaceous (Campanian) Marthasterites furcatus	DEF	AT
29663 / 29599	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 778

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 681 Date of Summary: 01-NOV-2004 First Sample Examined: 21610 Lease Number: G20949 Source of Paleo: OPERATOR 27575 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 27553 **API Well Number:** 608084000500 **Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation:** 91 Water Depth: 6345 Paleo Report Num: 1 of 1 **Sample Range:** 21610 - 27575 Public Info Code: Y 31-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Sardinia Prospect, company-integrated foram and nanno report, 24970=Middle Eocene Acarinina matthewsae LAD, 25030=Middle Eocene

Reticulofenestra umbilica FAD, 27070=possible Late Paleocene Acarinina mckannai LAD, 27130=possible Late Paleocene Subbotina triloculinoides

LAD, 27540=in Late Cretaceous Uniplanarius trifidus

MD / TVD		Paleo Top Description		Ecoz	zone
21610 / 21607	DEF	AT first sample examined	POS	AT	4
21665 / 21662	DEF	AT base of salt	POS	AT	4
21670 / 21667	DEF	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	4
21760 / 21757	DEF	AT faunal change (no faunal increase)	DEF	IN	4
21940 / 21937	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	IN	4
22150 / 22147	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	IN	4
22360 / 22357	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	IN	4
22420 / 22417	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	4
22600 / 22597	DEF	AT faunal change (no faunal increase)	DEF	AT	4
22660 / 22657	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
22720 / 22717	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	4
23109 / 23106	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT	4
23110 / 23107	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	4
23410 / 23407	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	4
23440 / 23437	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	4
23530 / 23527	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	IN	4
23590 / 23587	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	IN	4
23726 / 23723	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	IN	4
23727 / 23724	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
23770 / 23767	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	IN	5

GEOLOGIC 02-FEB-2011

779

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 681 Date of Summary: 01-NOV-2004 First Sample Examined: 21610 Source of Paleo: OPERATOR Lease Number: G20949 **Borehole MD:** 27575 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 27553 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608084000500 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 21610 - 27575 6345 Water Depth:

Public Info Code: Y 31-DEC-2008 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
23800 / 23797	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	IN	5
24400 / 24397	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	IN	5
24430 / 24427	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	IN	5
24609 / 24606	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	IN	5
24610 / 24607	DEF	AT Upper Eocene (Priabonian) Globorotalia cerroazulensis cocoaensis	DEF	IN	5
24670 / 24667	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	IN	5
24760 / 24757	DEF	AT Upper Eocene (Priabonian) Globigerinatheka semiinvoluta	DEF	IN	5
24820 / 24817	DEF	AT Middle Eocene (Bartonian) Pemma papillatum	DEF	IN	5
24940 / 24937	DEF	AT Middle Eocene (Bartonian) Sphenolithus furcatolithoides	DEF	IN	5
24970 / 24967	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	IN	5
25030 / 25027	DEF	AT local marker floral increase	POS	IN	6
25120 / 25117	DEF	AT Upper Paleocene (Thanetian) Discoaster diastypus	POS	IN	6
25288 / 25284	DEF	IN Upper Paleocene (Thanetian) Discoaster diastypus	POS	IN	6
27070 / 27055	POS	AT Upper Paleocene (Thanetian) Planulorotalites pseudomenardii	POS	IN	6
27130 / 27114	POS	AT Upper Paleocene (Thanetian) Planorotalites compressa	POS	IN	6
27500 / 27479	DEF	AT Upper Cretaceous (Maastrichtian) Micula decussata	POS	IN	6
27508 / 27487	DEF	IN Upper Cretaceous (Maastrichtian) Micula decussata	POS	IN	6
27540 / 27519	DEF	IN Upper Cretaceous (Maastrichtian) Tetralithus trifidus	POS	IN	6
27575 / 27553	DEF	AT last sample examined	POS	IN	6

GEOLOGIC 02-FEB-2011 PAGE: 780

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 774 9570 Date of Summary: 01-MAY-2001 First Sample Examined: Lease Number: G21441 Source of Paleo: OPERATOR 27000 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 26980 **API Well Number:** 608084000300 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **Rkb Elevation:** 91 **Sample Range:** 9570 - 27000 6743 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Ponza Prospect, calcareous nannofossil report, 17190=Helicosphaera bramlettei, 18870=Hornibrookina teuriensis

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9570 / 9570	DEF	AT first sample examined	DEF	AT
9571 / 9571	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10680 / 10679	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10770 / 10769	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10830 / 10829	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
11040 / 11039	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
11550 / 11549	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
13680 / 13678	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
13800 / 13798	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
14610 / 14608	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
14730 / 14728	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
15870 / 15868	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
15990 / 15988	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16350 / 16348	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
16440 / 16438	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
16500 / 16498	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
16680 / 16678	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
16920 / 16918	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
17070 / 17068	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	AT
17130 / 17128	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
17131 / 17129	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus (increase)	DEF	AT
17190 / 17188	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 781

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: KC774Date of Summary: 01-MAY-2001First Sample Examined: 9570Lease Number: G21441Source of Paleo: OPERATORBorehole MD: 27000

Lease Number:G21441Source of Paleo:OPERATORBorehole MD:27000Well Name:001Paleo Done By:OPERATORBorehole TVD:26980

API Well Number: 608084000300 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 91

Paleo Report Num:1of1Sample Range:9570 -27000Water Depth:6743

Public Info Code: Y 14-MAR-2010 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
17403 / 17401	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
17550 / 17547	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT
17551 / 17548	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT
17670 / 17667	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT
17730 / 17727	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT
18030 / 18027	DEF	IN Middle Eocene (Bartonian) Chiasmolithus solitus	DEF	AT
18180 / 18177	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	AT
18420 / 18416	POS	AT Lower Eocene (Ypresian) Tribrachiatus orthostylus	DEF	AT
18480 / 18476	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT
18540 / 18536	DEF	AT Upper Paleocene (Thanetian) Heliolithus riedelli	DEF	AT
18870 / 18865	DEF	AT Upper Paleocene (Thanetian) Discoaster diastypus	DEF	AT
18960 / 18955	DEF	AT Upper Cretaceous (Maastrichtian) Micula prinsii (FAD)	DEF	AT
19200 / 19195	DEF	AT Upper Cretaceous (Maastrichtian) Aspidolithus parcus constrictus	DEF	AT
19491 / 19485	POS	IN Upper Cretaceous (Maastrichtian) Tetralithus trifidus	DEF	AT
19560 / 19554	DEF	IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
19980 / 19972	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
20130 / 20122	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
20460 / 20451	POS	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
20700 / 20690	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
21180 / 21170	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
21240 / 21229	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
21705 / 21693	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21750 / 21738	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
21810 / 21798	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT

GEOLOGIC 02-FEB-2011

782

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: KC 774 Date of Summary: 01-MAY-2001 First Sample Examined: 9570 Source of Paleo: OPERATOR Lease Number: G21441 **Borehole MD:** 27000 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 26980 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608084000300 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 9570 - 27000 6743 Water Depth:

> Public Info Code: Y 14-MAR-2010 Ecozone Eq MMS: Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
23700 / 23684	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
24420 / 24403	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
25050 / 25033	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
25440 / 25423	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	AT
25740 / 25723	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
25980 / 25962	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
26700 / 26681	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	AT
26970 / 26950	POS	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT
27000 / 26980	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

783

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: LL Date of Summary: 20-JAN-2005 First Sample Examined: 13630 2 Lease Number: G10486 Source of Paleo: OPERATOR **Borehole MD:** 17492 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15980 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608244000401 **Rkb Elevation:** 79 Paleo Report Num: 1 of 2 **Sample Range:** 13630 - 17493 8340 Water Depth: Public Info Code: Y 24-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description	<u>Ecozone</u>
13630 / 13548	DEF	AT first sample examined	DEF AT
13650 / 13566	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF AT
13710 / 13622	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF AT
14250 / 14103	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF AT
14550 / 14340	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF AT
14640 / 14408	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF AT
14730 / 14475	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF AT
15840 / 15129	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF AT
16470 / 15453	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF AT
17493 /	DEF	AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 784

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: LL Date of Summary: 24-JAN-2005 First Sample Examined: 13630 2 Lease Number: G10486 Source of Paleo: OPERATOR **Borehole MD:** 17492 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15980 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608244000401 **Rkb Elevation:** 79 Paleo Report Num: 2 of 2 **Sample Range:** 13630 - 17493 8340 Water Depth: Public Info Code: Y 24-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
13630 / 13548	DEF	AT first sample examined	DEF	AT	6
13740 / 13650	POS	IN Upper Miocene (Tortonian) Robulus "E"	DEF	AT	6
13770 / 13678	DEF	AT	DEF	AT	5
14550 / 14340	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
14880 / 14586	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	5
14970 / 14649	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
15780 / 15098	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
16860 / 15654	POS	IN Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
16980 / 15716	POS	IN Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
17493 /	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 785

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: LL 268 Date of Summary: 20-AUG-2008 First Sample Examined: 11978 Lease Number: G10492 Source of Paleo: OPERATOR 15930 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15929 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608244000900 **Rkb Elevation:** 88 **Sample Range:** 11978 - 15930 Paleo Report Num: 1 of 1 Water Depth: 8816 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description			Eco	zone
11978 / 11978	DEF	AT first sample examined	DEF	: <sub>^</sub>	ΑT	5
12540 / 12540	POS	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	: A	ΛT	5
12570 / 12570	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	: Δ	<b>Λ</b> Τ	5
13319 / 13319	POS	AT maximum flooding surface	DEF	: Δ	۸T	5
13320 / 13320	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	: Δ	۸T	5
13347 / 13347	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	- 11	N	5
13348 / 13348	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	- 11	N	5
13349 / 13349	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	- 11	N	5
13350 / 13350	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	- 11	N	5
13374 / 13374	POS	AT maximum flooding surface	DEF	- 11	N	5
13376 / 13376	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	- 11	N	5
13377 / 13377	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	- 11	N	5
13378 / 13378	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	- 11	N	5
13379 / 13379	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	- 11	N	5
13380 / 13380	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	- 11	N	5
13440 / 13440	DEF	AT	DEF	: Д	<b>Λ</b> Τ	5
13980 / 13980	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	: Д	<b>Λ</b> Τ	5
14700 / 14700	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	- A	<b>Λ</b> Τ	5
14908 / 14908	POS	AT maximum flooding surface	DEF	: Δ	۸T	5
14909 / 14909	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	: Δ	۸T	5
14910 / 14910	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	: Δ	ΑT	5
15029 / 15029	POS	AT maximum flooding surface	DEF	. ,	١T	5

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

786

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: LL 268 Date of Summary: 20-AUG-2008 First Sample Examined: 11978 Lease Number: G10492 Source of Paleo: OPERATOR 15930 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15929 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608244000900 **Rkb Elevation:** 88 **Sample Range:** 11978 - 15930 Paleo Report Num: 1 of 1 8816 Water Depth: Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description			<b>Ecozone</b>
15030 / 15030	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	АТ	5
15060 / 15060	DEF	AT unconformity	DEF	АТ	6
15088 / 15088	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	АТ	6
15089 / 15089	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	6
15090 / 15090	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	АТ	6
15210 / 15210	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	АТ	6
15270 / 15270	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	АТ	6
15300 / 15300	DEF	AT	DEF	АТ	5
15570 / 15570	POS	IN Upper Miocene (Tortonian) Discoaster calcaris	DEF	АТ	5
15628 / 15628	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	АТ	5
15629 / 15629	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	АТ	5
15630 / 15630	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	АТ	5
15690 / 15690	POS	AT maximum flooding surface	DEF	АТ	5
15780 / 15780	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	АТ	5
15809 / 15809	POS	AT maximum flooding surface	DEF	АТ	5
15810 / 15810	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	АТ	5
15899 / 15898	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	АТ	5
15900 / 15899	POS	IN Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	АТ	5
15930 / 15929	DEF	AT last sample examined	DEF	АТ	5

GEOLOGIC 02-FEB-2011

787

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 20 Date of Summary: 26-DEC-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15459 **Borehole MD:** 14370 Well Name: A020 Paleo Done By: OPERATOR **Borehole TVD:** 7869 **Drilling Operator:** TAYLOR ENERGY COMPANY **API Well Number:** 608174089200 **Rkb Elevation:** 128 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 479 Water Depth: Public Info Code: Y 27-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5310 / 3610	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF /	AT
7800 / 4697	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF /	AT
11710 / 6440	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF /	AT
14052 / 7514	DEF	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF /	AT

GEOLOGIC 02-FEB-2011 PAGE: 788

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 29 Date of Summary: 24-MAR-1998 First Sample Examined: 3660 Lease Number: G13997 Source of Paleo: OPERATOR **Borehole MD:** 7959 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7848 **Drilling Operator:** ORYX ENERGY COMPANY **API Well Number:** 608174060300 **Rkb Elevation:** 72 Paleo Report Num: 1 of 2 **Sample Range:** 3660 - 7959 2266 Water Depth: Public Info Code: Y 03-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

TVD		Paleo Top Description		Eco <sub>2</sub>	zone
3660	DEF	AT first sample examined	DEF	AT	4
3690	DEF	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
4259	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
4260	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
4290	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
4350	DEF	AT faunal change (no faunal increase)	DEF	AT	5
4440	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
4650	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
4860	DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	AT	5
5039	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
5040	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
5399	POS	AT out-of-place section	DEF	AT	5
5400	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
7168	POS	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
7708	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
7849	DEF	AT last sample examined	DEF	AT	5
3 3 4 4 4 4 4 5 5 5 7 7	3660 3690 4259 4260 4350 4440 4650 4860 5039 5040 5399 5400 7168	DEF	DEF AT first sample examined DEF IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A") DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B") DEF AT Lower Pleistocene (Calabrian) Uvigerina hispida DEF AT Upper Pliocene (Gelasian) Globorotalia crassula (acme) DEF AT faunal change (no faunal increase) DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica DEF AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata DEF AT Upper Pliocene (Piacenzian) Globorotalia multicamerata DEF AT Upper Pliocene (Piacenzian) Globorotalia margaritae DEF AT Lower Pliocene (Zanclian) Uvigerina rustica DEF AT Lower Pliocene (Zanclian) Uvigerina rustica DEF AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF AT first sample examined DEF at Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A") DEF DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B") DEF DEF AT Lower Pleistocene (Calabrian) Uvigerina hispida DEF DEF AT Upper Pliocene (Gelasian) Globorotalia crassula (acme) DEF	DEF AT first sample examined  DEF AT DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")  DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")  DEF AT Lower Pleistocene (Calabrian) Uvigerina hispida  DEF AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)  DEF AT faunal change (no faunal increase)  DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica  DEF AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica  DEF AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata  DEF AT Upper Pliocene (Piacenzian) Globorotalia multicamerata  DEF AT Upper Pliocene (Piacenzian) Globorotalia margaritae  DEF AT Upper Pliocene (Zanclian) Uvigerina rustica  DEF AT Upper Pliocene (Zanclian) Uvigerina rustica

GEOLOGIC 02-FEB-2011 PAGE: 789

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 29 Date of Summary: 24-MAR-1998 First Sample Examined: 3660 Lease Number: G13997 Source of Paleo: OPERATOR **Borehole MD:** 7959 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7848 **Drilling Operator:** ORYX ENERGY COMPANY **API Well Number:** 608174060300 **Rkb Elevation:** 72 Paleo Report Num: 2 of 2 **Sample Range:** 3660 - 7959 2266 Water Depth: Public Info Code: Y 03-APR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

TVD		Paleo Top Description		<b>Ecozone</b>
3660	DEF	AT first sample examined	DEF	AT
3780	POS	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
4258	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
4259	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
4260	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
4350	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
4500	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
4680	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
4950	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
7467	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
7849	DEF	AT last sample examined	DEF	AT
	3660 3780 4258 4259 4260 4350 4500 4680 4950 7467	3660 DEF 3780 POS 4258 DEF 4259 DEF 4260 DEF 4350 DEF 4500 DEF 4680 DEF 4950 DEF 7467 DEF	3660 DEF AT first sample examined 3780 POS IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) 4258 DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii 4259 DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei 4260 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri 4350 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri "A" 4500 DEF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus 4680 DEF AT Upper Pliocene (Gelasian) Discoaster surculus 4950 DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis 7467 DEF AT Lower Pliocene (Zanclian) Sphenolithus abies	3660DEFAT first sample examinedDEF3780POSIN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)DEF4258DEFAT Lower Pleistocene (Calabrian) Helicosphaera selliiDEF4259DEFAT Lower Pleistocene (Calabrian) Calcidiscus macintyreiDEF4260DEFAT Upper Pliocene (Gelasian) Discoaster brouweriDEF4350DEFAT Upper Pliocene (Gelasian) Discoaster brouweri "A"DEF4500DEFAT Upper Pliocene (Gelasian) Discoaster pentaradiatusDEF4680DEFAT Upper Pliocene (Gelasian) Discoaster surculusDEF4950DEFAT Upper Pliocene (Piacenzian) Discoaster tamalisDEF7467DEFAT Lower Pliocene (Zanclian) Sphenolithus abiesDEF

GEOLOGIC 02-FEB-2011

790

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 109 11700 Date of Summary: 01-JUL-2000 First Sample Examined: Lease Number: G09777 Source of Paleo: OPERATOR 21945 **Borehole MD:** Well Name: A032 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 8708 **API Well Number:** 608174088501 **Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation:** 141 **Sample Range:** 11700 - 21945 1030 Paleo Report Num: 1 of 3 Water Depth: Public Info Code: Y 30-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, no summary report, only detailed sample description received, nannospecies abundance and diversity chart available,

see report for details

MD/1	<u>TVD</u>		Paleo Top Description		<u>Ecozone</u>
11700 /	5652	DEF	AT first sample examined	DEF	AT
11701 /	5652	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11820 /	5686 F	POS	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
21945 /	8708	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 791

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 109 Date of Summary: 30-JUN-2001 11700 First Sample Examined: Lease Number: G09777 Source of Paleo: OPERATOR 21945 **Borehole MD:** Well Name: A032 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 8708 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 608174088501 **Rkb Elevation:** 141 **Sample Range:** 11700 - 21945 Paleo Report Num: 2 of 3 1030 Water Depth: Public Info Code: Y 30-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		Ecoz	zone
11700 /	5652	DEF	AT first sample examined	DEF	IN	3
11880 /	5703	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11910 /	5711	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
11940 /	5719	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11970 /	5728	DEF	AT faunal change (no faunal increase)	DEF	AT	4
12060 /	5754	DEF	AT faunal change (no faunal increase)	DEF	IN	3
15600 /	6886	DEF	AT faunal change (no faunal increase)	DEF	AT	2
15660 /	6904	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	2
15780 /	6940	DEF	AT local marker foram increase	DEF	AT	2
15960 /	6994	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	2
16260 /	7086	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	2
17100 /	7338	DEF	AT faunal change (no faunal increase)	DEF	IN	2
17610 /	7487	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	2
17790 /	7540	DEF	AT local marker foram increase	DEF	IN	2
18390 /	7714	DEF	AT sample gap top	POS	IN	2
19050 /	7911	DEF	AT sample gap bottom	DEF	IN	2
19410 /	8017	DEF	AT faunal change (no faunal increase)	DEF	AT	2
20070 /	8208	DEF	AT faunal change (no faunal increase)	DEF	IN	2
20400 /	8300	DEF	AT faunal change (no faunal increase)	DEF	AT	2
21945 /	8708	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011 PAGE: 792

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 109 Date of Summary: 24-SEP-2001 11700 First Sample Examined: Lease Number: G09777 Source of Paleo: OPERATOR **Borehole MD:** 21945 Well Name: A032 Paleo Done By: OPERATOR **Borehole TVD:** 8708 **Drilling Operator: BP EXPLORATION & PRODUCTION INC API Well Number:** 608174088501 **Rkb Elevation:** 141 Paleo Report Num: 3 of 3 **Sample Range:** 11700 - 21945 1030 Water Depth: Public Info Code: Y 30-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
11700 / 5652	DEF	AT first sample examined	DEF	IN	3
11701 / 5652	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	3
11820 / 5686	DEF	IN Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	IN	3
12060 / 5754	DEF	AT maximum flooding surface	DEF	IN	3
13260 / 6126	DEF	AT maximum flooding surface	DEF	IN	3
14190 / 6443	DEF	AT maximum flooding surface	DEF	IN	3
14400 / 6507	DEF	AT sample gap top	DEF	ΑT	
15480 / 6848	DEF	AT sample gap bottom	DEF	ΑT	
15660 / 6904	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	2
16260 / 7086	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	2
17370 / 7417	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	IN	2
17600 / 7485	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	2
18330 / 7696	DEF	AT maximum flooding surface	DEF	IN	2
19140 / 7937	DEF	AT maximum flooding surface	DEF	IN	2
20100 / 8216	DEF	AT maximum flooding surface	DEF	IN	2
21944 / 8708	POS	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	2
21945 / 8708	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011 PAGE: 793

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 109 Date of Summary: 13-APR-2000 5970 First Sample Examined: Lease Number: G18192 Source of Paleo: OPERATOR **Borehole MD:** 12515 Well Name: A031 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 6650 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174087900 **Rkb Elevation:** 140 Paleo Report Num: 1 of 2 **Sample Range:** 5970 - 12515 Water Depth: 1030 Public Info Code: Y 08-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Orion Prospect

MD / TVI	<u>)                                    </u>	Paleo Top Description		<u>E</u> c	cozone
5970 / 41	19 DEF	AT first sample examined	DEF	AT	5
5971 / 41	19 DEF	AT foram flood	DEF	AT	5
5972 / 41	19 POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
6090 / 41	52 POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
6150 / 41	DEF	AT	DEF	AT	4
6210 / 41	34 DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
6450 / 42	56 DEF	AT	DEF	IN	3
6480 / 42	DEF	AT	DEF	AT	4
6507 / 42	72 DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	4
6508 / 42	73 DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
6509 / 42	73 DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	4
6510 / 42	73 DEF	AT Upper Pliocene (Gelasian) Textularia crassisepta / "P"	DEF	AT	4
6540 / 42	32 DEF	AT local marker foram decrease	DEF	AT	4
6600 / 42	99 POS	AT Upper Pliocene (Piacenzian) Saracenaria "H"	DEF	AT	4
6660 / 43	16 POS	AT reworked material	DEF	AT	4
6720 / 43	POS	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
6810 / 43	59 POS	AT Upper Pliocene (Piacenzian) Saracenaria "H"	DEF	IN	3
6840 / 43	S8 DEF	AT	DEF	AT	4
6960 / 44	DEF	AT	DEF	IN	3
7260 / 44	DEF	AT	DEF	AT	4
7290 / 44	DEF	AT	DEF	IN	3
7770 / 46	DEF	AT transported shelf fauna	POS	IN	3

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 794

Fcozone

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 109 Date of Summary: 13-APR-2000 5970 First Sample Examined: Lease Number: G18192 Source of Paleo: OPERATOR 12515 **Borehole MD:** Well Name: A031 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 6650 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174087900 **Rkb Elevation:** 140 Paleo Report Num: 1 of 2 **Sample Range:** 5970 - 12515 Water Depth: 1030 Public Info Code: Y 08-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

<u>MD /</u>	IVD		Paleo Top Description		<u>Eco</u>	zone
8040 /	4706	DEF	AT	DEF	IN	3
8189 /	4746	POS	AT reworked material	DEF	IN	3
8190 /	4746	DEF	AT local marker foram increase	DEF	IN	3
8340 /	4783	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	3
8850 /	4916	DEF	AT sand	DEF	AT	3
8970 /	4945	POS	IN Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	4
9120 /	4980	POS	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
9270 /	5016	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
9420 /	5054	DEF	AT	DEF	AT	3
9990 /	5209	DEF	AT local marker planktic foram increase	DEF	AT	3
10020 /	5219	DEF	AT local marker foram increase	DEF	IN	3
10230 /	5292	DEF	AT	DEF	AT	4
10260 /	5304	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
10350 /	5341	POS	AT reworked material	DEF	IN	3
10440 /	5381	DEF	AT	DEF	AT	3
10710 /	5518	DEF	AT local marker foram decrease	DEF	AT	3
10830 /	5585	POS	AT reworked material	DEF	AT	3
11520 /	6006	DEF	IN Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	AT	3
11730 /	6136	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	3
11819 /	6192	POS	AT reworked material	DEF	AT	3
11820 /	6192	DEF	AT local marker foram increase	DEF	AT	3
12515 /	6650	DEF	AT last sample examined	DEF	AT	3

This report contains public paleo reports only for the time period stated

Paleo Ton Description

GEOLOGIC

02-FEB-2011 PAGE: 795

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 109 Date of Summary: 01-AUG-2000 First Sample Examined: 5970 Source of Paleo: OPERATOR Lease Number: G18192 **Borehole MD:** 12515 Well Name: A031 Paleo Done By: OPERATOR **Borehole TVD:** 6650 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174087900 **Rkb Elevation:** 140 Paleo Report Num: 2 of 2 **Sample Range:** 5970 - 12515 1030 Water Depth: Public Info Code: Y 08-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Orion Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5970 / 4119	DEF	AT first sample examined	DEF	AT
5971 / 4119	DEF	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
6180 / 4176	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6660 / 4316	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
6900 / 4386	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11490 / 5987	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
11820 / 6192	POS	AT Lower Pliocene (Zanclian) Discoaster challengeri	DEF	AT
12515 / 6650	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 796

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 126 Date of Summary: 01-DEC-1999 10030 First Sample Examined: Lease Number: G18194 Source of Paleo: OPERATOR 14450 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 14443 **API Well Number:** 608174085900 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 10030 - 14450 5308 Water Depth: Public Info Code: Y 12-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
10030 / 10030	DEF	AT first sample examined	DEF	AT	4
10031 / 10031	DEF	IN Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
10149 / 10149	DEF	AT condensed section	DEF	AT	4
10150 / 10150	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
10180 / 10180	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
10240 / 10240	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	ΑT	5
10330 / 10330	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
10389 / 10389	POS	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	ΑT	4
10390 / 10390	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	ΑT	4
10510 / 10510	DEF	AT local marker foram increase	DEF	AT	5
10630 / 10630	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
10690 / 10690	DEF	AT local marker benthic foram increase	DEF	ΑT	4
11110 / 11110	DEF	AT local marker foram decrease	DEF	AT	4
11260 / 11260	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
11320 / 11320	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	4
11500 / 11500	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11590 / 11590	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
11650 / 11650	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11890 / 11890	DEF	AT local marker foram decrease	DEF	ΑT	4
12070 / 12070	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
12130 / 12130	DEF	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	AT	5
12310 / 12309	POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

797

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 126 Date of Summary: 01-DEC-1999 First Sample Examined: 10030 Lease Number: G18194 Source of Paleo: OPERATOR **Borehole MD:** 14450 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 14443 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174085900 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 10030 - 14450 5308 Water Depth:

Public Info Code: Y 12-DEC-2009 Ecozone Eq MMS: Y

	Paleo Top Description		Eco	zone
DEF	IN Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	6
DEF	AT faunal change (no faunal increase)	DEF	AT	4
POS	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	4
DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
DEF	AT local marker foram increase	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
DEF	AT local marker planktic foram increase	DEF	AT	5
DEF	AT faunal change (no faunal increase)	DEF	AT	4
POS	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	4
DEF	AT local marker planktic foram increase	DEF	AT	4
DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
DEF	AT local marker foram decrease	DEF	AT	4
DEF	AT last sample examined	DEF	AT	4
	DEF DEF DEF DEF DEF DEF DEF DEF DEF	DEF IN Upper Miocene (Tortonian) Cibicides crebbsi  DEF AT faunal change (no faunal increase)  DEF AT faunal change (no faunal increase)  POS AT Upper Miocene (Tortonian) Globorotalia mayeri  DEF AT Upper Miocene (Tortonian) Uvigerina 3  DEF AT local marker foram increase  DEF AT faunal change (no faunal increase)  DEF AT Middle Miocene (Serravallian) Globorotalia fohsi robusta  DEF AT local marker planktic foram increase  DEF AT faunal change (no faunal increase)  POS AT Middle Miocene (Serravallian) Globorotalia fohsi lobata  DEF AT local marker planktic foram increase  DEF AT local marker foram decrease	DEF IN Upper Miocene (Tortonian) Cibicides crebbsi  DEF AT faunal change (no faunal increase)  DEF AT faunal change (no faunal increase)  DEF AT fund (no faunal increase)  DEF AT Upper Miocene (Tortonian) Globorotalia mayeri  DEF AT Upper Miocene (Tortonian) Uvigerina 3  DEF DEF AT local marker foram increase  DEF DEF AT faunal change (no faunal increase)  DEF DEF AT Middle Miocene (Serravallian) Globorotalia fohsi robusta  DEF DEF AT local marker planktic foram increase  DEF DEF AT faunal change (no faunal increase)  DEF DEF AT Middle Miocene (Serravallian) Globorotalia fohsi lobata  DEF DEF AT local marker planktic foram increase  DEF DEF AT local marker foram decrease  DEF	DEF AT JUDGER Miocene (Tortonian) Cibicides crebbsi  DEF AT faunal change (no faunal increase)  DEF AT JUDGER AT faunal change (no faunal increase)  DEF AT JUDGER AT JUDGER Miocene (Tortonian) Globorotalia mayeri  DEF AT JUDGER AT JUDGER Miocene (Tortonian) Uvigerina 3  DEF AT JUDGER AT JUDGER Miocene (Tortonian) Uvigerina 3  DEF AT JUDGER AT J

GEOLOGIC 02-FEB-2011 PAGE: 798

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 126 10030 Date of Summary: 01-DEC-1999 First Sample Examined: Lease Number: G18194 Source of Paleo: OPERATOR 14450 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 14443 **API Well Number:** 608174085900 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 **Sample Range:** 10030 - 14450 Paleo Report Num: 2 of 2 5308 Water Depth: Public Info Code: Y 12-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 10031=possible Discoaster preberggrenii, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
10030 / 10030	DEF	AT first sample examined	DEF	AT
10031 / 10031	POS	IN Upper (Late) Miocene	DEF	AT
10032 / 10032	POS	AT reworked material	DEF	AT
10180 / 10180	DEF	IN Upper (Late) Miocene	DEF	AT
10420 / 10420	DEF	AT Middle Miocene (Langhian) Discoaster icarus	DEF	AT
10450 / 10450	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
10510 / 10510	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
10960 / 10960	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
11230 / 11230	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
11231 / 11231	DEF	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
11530 / 11530	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
12340 / 12339	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
12341 / 12340	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
12400 / 12399	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
12490 / 12489	POS	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
12500 / 12499	DEF	AT reworked material	DEF	AT
12730 / 12729	POS	AT Upper Miocene (Tortonian) Discoaster exilis	DEF	AT
13330 / 13329	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
13331 / 13330	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
13450 / 13449	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
13540 / 13538	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
13780 / 13778	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 799

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 126 Date of Summary: 01-DEC-1999

Lease Number: G18194 Source of Paleo: OPERATOR

Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT)

**API Well Number:** 608174085900 **Drilling Operator:** VASTAR RESOURCES INC.

**Sample Range:** 10030 - 14450 Paleo Report Num: 2 of 2

Public Info Code: Y 12-DEC-2009 **Ecozone Eq MMS:**  First Sample Examined: 14450 **Borehole MD: Borehole TVD:** 14443

**Rkb Elevation:** 78 5308 Water Depth:

Paleo ID: 002

10030

MD/TVD

**Paleo Top Description** 

**Ecozone** 

DEF AT last sample examined 14450 / 14443

DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 800

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 7470 Date of Summary: 01-AUG-1999 First Sample Examined: Lease Number: G19925 Source of Paleo: OPERATOR 13901 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 13896 **API Well Number:** 608174085100 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 Water Depth: 5423 Paleo Report Num: 1 of 2 **Sample Range:** 7470 - 13901 Public Info Code: Y 26-AUG-2009 **Ecozone Eq MMS:** Paleo ID: 002

**Remark:** Calcareous nannofossil report, 10110=Discoaster preberggrenii, the poor recovery of flora at the bottom of the original hole and throughout hte sidetrack may suggest a lowstand event, supported by the Coccolithus forms found through the interval, nannospecies abundance and diversity chart

available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7470 / 7470	DEF	AT first sample examined	DEF	AT
7530 / 7530	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
7531 / 7531	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
7590 / 7590	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
7680 / 7680	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
7681 / 7681	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
8640 / 8640	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
9510 / 9510	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
9540 / 9540	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT
10110 / 10110	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
10590 / 10590	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
11130 / 11130	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
11280 / 11280	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
11640 / 11640	DEF	AT local marker floral increase	DEF	AT
11730 / 11730	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
12660 / 12659	DEF	AT local marker floral decrease	DEF	AT
13901 / 13896	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 801

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-SEP-1999 First Sample Examined: 7470 Lease Number: G19925 Source of Paleo: OPERATOR **Borehole MD:** 13901 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13896 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174085100 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 7470 - 13901 5423 Water Depth: Public Info Code: Y 26-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
7470 / 7470	DEF	AT first sample examined	DEF	AT	4
7530 / 7530	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
7620 / 7620	POS	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	4
8520 / 8520	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	4
8550 / 8550	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	4
8700 / 8700	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	5
8820 / 8820	POS	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	ΑT	5
9090 / 9090	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	5
9750 / 9750	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	5
9870 / 9870	DEF	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	ΑT	5
9900 / 9900	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	5
10050 / 10050	POS	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	ΑT	5
10829 / 10829	DEF	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	ΑT	5
10830 / 10830	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	ΑT	5
10890 / 10890	DEF	AT local marker benthic foram increase	DEF	AT	5
11100 / 11100	DEF	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	5
11130 / 11130	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	ΑT	5
11400 / 11400	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
11550 / 11550	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
11670 / 11670	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
11700 / 11700	DEF	AT reworked material	DEF	AT	5
11730 / 11730	DEF	AT Bathysiphon fauna	DEF	AT	5

**GEOLOGIC** 02-FEB-2011

802

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-SEP-1999 First Sample Examined: 7470 Lease Number: G19925 Source of Paleo: OPERATOR **Borehole MD:** 13901 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 13896

> Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174085100 **Rkb Elevation:** 78 5423 Water Depth:

Paleo Report Num: 2 of 2 **Sample Range:** 7470 - 13901

Public Info Code: Y 26-AUG-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	ozone
11760 / 11760	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
11940 / 11940	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11970 / 11970	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
12060 / 12060	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
12150 / 12150	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
12300 / 12299	DEF	AT faunal change (no faunal increase)	DEF	AT	4
12360 / 12359	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	4
12540 / 12539	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
13530 / 13527	DEF	AT faunal change (no faunal increase)	POS	AT	4
13901 / 13896	DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 803

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 12700 Date of Summary: 01-AUG-1999 First Sample Examined: Lease Number: G19925 Source of Paleo: OPERATOR 14677 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 14667 **API Well Number:** 608174085101 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 Water Depth: 5423 Paleo Report Num: 1 of 2 **Sample Range:** 12700 - 14677 Public Info Code: Y 05-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 002

**Remark:** Calcareous nannofossil report, the poor recovery of flora at the bottom of the original hole and throughout the sidetrack may suggest a lowstand event, supported by the coccolith forms found through the interval, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12700 / 12698	DEF	AT first sample examined	DEF	AT
13390 / 13384	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
14530 / 14521	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
14677 / 14667	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

804

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-SEP-1999 13720 First Sample Examined: Lease Number: G19925 Source of Paleo: OPERATOR **Borehole MD:** 14677 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 14667 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174085101 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 12700 - 14677 5423 Water Depth: Public Info Code: Y 05-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 14410=Cyclammina 4 acme

MD / TVD		Paleo Top Description		<b>Ecozone</b>	<u>!</u>
13720 / 13713	DEF	AT first sample examined	POS A	AT 4	
13960 / 13952	DEF	AT faunal change (no faunal increase)	DEF A	AT 4	
14409 / 14400	DEF	AT Cyclammina sp. (local marker)	DEF A	AT 4	
14410 / 14401	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF A	AT 4	
14560 / 14551	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF A	AT 5	
14620 / 14610	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF A	AT 5	
14677 / 14667	DEF	AT last sample examined	DEF A	AT 5	

GEOLOGIC

02-FEB-2011 PAGE: 805

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-SEP-1999 First Sample Examined: 12490 Lease Number: G19925 Source of Paleo: OPERATOR 16356 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 14549 **Drilling Operator:** VASTAR RESOURCES INC. **API Well Number:** 608174085102 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 12490 - 16356 5423 Water Depth: Public Info Code: Y 16-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
12490 / 12417	DEF AT first sample examined	DEF AT
13390 / 13008	POS AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF AT
14350 / 13506	DEF AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF AT
14380 / 13522	DEF AT Middle Miocene (Serravallian) Coccolithus miopelagicus (consistent)	DEF AT
14470 / 13568	POS AT Middle Miocene (Serravallian) Discoaster kugleri	DEF AT
14500 / 13583	POS IN Middle Miocene (Serravallian) Discoaster kugleri	DEF AT
16356 / 14549	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 806

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-OCT-1999 First Sample Examined: 12550 Lease Number: G19925 Source of Paleo: OPERATOR **Borehole MD:** 16356 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 14549 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174085102 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 11800 - 16356 5423 Water Depth: Public Info Code: Y 16-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Ec	ozone
11800 / 11795	DEF	AT first sample examined	DEF	AT	4
12550 / 12466	POS	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
12610 / 12513	DEF	AT local marker foram increase	DEF	AT	5
12790 / 12646	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13210 / 12911	DEF	AT faunal change (no faunal increase)	POS	AT	4
13600 / 13115	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
13660 / 13147	DEF	AT Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	AT	4
13809 / 13225	DEF	AT pyrite	DEF	AT	4
13810 / 13225	DEF	AT local marker foram decrease	DEF	AT	4
14350 / 13506	DEF	AT local marker foram increase	DEF	AT	5
14410 / 13537	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
14530 / 13598	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15910 / 14328	POS	AT Arenaceous fauna (local marker)	DEF	AT	4
16300 / 14522	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
16356 / 14549	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 807

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-NOV-1999 10350 First Sample Examined: Lease Number: G19925 Source of Paleo: OPERATOR 13762 **Borehole MD:** Well Name: 002 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 13759 **API Well Number:** 608174085500 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 **Sample Range:** 10350 - 13762 Paleo Report Num: 1 of 2 5468 Water Depth: Public Info Code: Y 25-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10350 / 10350	DEF	AT first sample examined	DEF	AT
10351 / 10351	DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
10440 / 10440	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
10740 / 10740	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
10980 / 10980	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
10981 / 10981	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
11130 / 11130	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
11160 / 11160	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
11190 / 11190	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	AT
11430 / 11430	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	AT
11580 / 11580	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
11730 / 11729	DEF	AT Upper Miocene (Tortonian) Discoaster exilis	DEF	AT
11790 / 11789	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
12360 / 12359	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
12361 / 12360	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
12600 / 12599	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
12630 / 12629	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
13762 / 13759	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 808

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 127 Date of Summary: 01-JAN-2000 First Sample Examined: 13762 Lease Number: G19925 Source of Paleo: OPERATOR **Borehole MD:** 13762 13759 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174085500 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 10350 - 13762 5468 Water Depth: Public Info Code: Y 25-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
10350 / 10350	DEF	AT first sample examined	DEF	AT	4
10470 / 10470	DEF	IN Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	4
10590 / 10590	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10739 / 10739	POS	AT condensed section	DEF	AT	5
10740 / 10740	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
10770 / 10770	DEF	AT local marker foram increase	DEF	AT	5
10950 / 10950	DEF	AT local marker foram increase	DEF	AT	5
11070 / 11070	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11310 / 11310	DEF	AT local marker foram increase	DEF	AT	4
11430 / 11430	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11790 / 11789	DEF	AT local marker benthic foram increase	DEF	AT	4
11850 / 11849	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
11910 / 11909	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
11970 / 11969	DEF	AT Bathysiphon fauna	DEF	AT	4
12330 / 12329	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
12450 / 12449	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
12510 / 12509	DEF	AT local marker foram increase	DEF	AT	5
12600 / 12599	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	6
12690 / 12689	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13560 / 13558	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
13762 / 13759	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

809

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 162 Date of Summary: 05-JAN-2010 First Sample Examined: 8400 Lease Number: G21746 Source of Paleo: OPERATOR 11218 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11075 **Drilling Operator: DEEP GULF ENERGY LP API Well Number:** 608174117400 **Rkb Elevation:** 78 **Sample Range:** 8400 - 11220 3266 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD /	TVD		Paleo Top Description		Eco <sub>2</sub>	zone
8400 /	8400	DEF	AT first sample examined	DEF	AT	6
8401 /	8401	DEF	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
8610 /	8610	POS	AT maximum flooding surface	DEF	AT	6
8670 /	8670	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
8700 /	8699	POS	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
8880 /	8878	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	6
9000 /	8995	POS	AT maximum flooding surface	DEF	AT	6
9030 /	9024	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	6
9329 /	9309	POS	AT maximum flooding surface	DEF	AT	6
9330 /	9310	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	6
9660 /	9607	POS	AT maximum flooding surface	DEF	AT	6
10080 /	9988	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	6
11217 /	11074	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	6
11218 /	11075	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 810

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 173 First Sample Examined: 8870 Date of Summary: 15-NOV-2001 Lease Number: G09790 Source of Paleo: OPERATOR **Borehole MD:** 12670 Well Name: SS002 Paleo Done By: OPERATOR **Borehole TVD:** 11866 **Drilling Operator:** BP AMERICA PRODUCTION COMPANY **API Well Number:** 608174090900 **Rkb Elevation:** 92 Paleo Report Num: 1 of 1 **Sample Range:** 8870 - 12670 6390 Water Depth: Public Info Code: Y 31-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8870 / 8870	DEF	AT first sample examined	DEF	AT
8960 / 8960	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
9000 / 9000	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
10010 / 10000	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
10640 / 10592	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
11480 / 11201	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
12350 / 11686	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
12670 / 11866	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 811

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 205 Date of Summary: 11-JAN-2002 5525 First Sample Examined: Lease Number: G22864 Source of Paleo: OPERATOR **Borehole MD:** 9054 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8629 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608174095600 **Rkb Elevation:** 73 Paleo Report Num: 1 of 2 **Sample Range:** 5525 - 9070 3771 Water Depth: Public Info Code: Y 28-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5525 / 5525	DEF AT first sample examined	DEF AT
5526 / 5526	DEF IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
6040 / 6038	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT
6190 / 6185	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
7330 / 7189	DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF AT
7900 / 7670	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF AT
8710 / 8353	DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF AT
9070 /	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 812

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	MC 205	Date of Summary: 15-JAN-2002	First Sample Examined:	5525
Lease Number:	G22864	Source of Paleo: OPERATOR	Borehole MD:	9054
Well Name:	001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	8629
API Well Number:	608174095600	Drilling Operator: MARINER ENERGY INC	Rkb Elevation:	73
Paleo Report Num:	2 of 2	Sample Range: 5525 - 9070	Water Depth:	3771
Public Info Code:	Y 28-SEP-2010	Ecozone Eq MMS: Y	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		<u>Ec</u>	cozone
5525 / 5525	DEF AT first sample examined	DEF	AT	5
5526 / 5526	DEF IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
6490 / 6470	DEF AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
7990 / 7748	DEF AT	DEF	AT	6
8140 / 7878	DEF AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
9070 /	DEF AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 813

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 243	Date of Summary: 07-MAY-1999	First Sample Examined: 4908
Lease Number: G19931	Source of Paleo: OPERATOR	Borehole MD: 8964
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD: 8400
API Well Number: 608174084200	Drilling Operator: TOTAL E&P USA INC	Rkb Elevation: 75
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 4908 - 8965	Water Depth: 2805
Public Info Code: Y 19-APR-2009	Ecozone Eg MMS: Y	Paleo ID: 002

### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
4908 / 4907	DEF	AT first sample examined	DEF	AT	
4909 / 4908	DEF	AT cement	DEF	AT	
5360 / 5358	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
5390 / 5388	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	IN	5
8120 / 7797	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
8965 /	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC

814

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 07-MAY-1999 First Sample Examined: 4908 Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 8964 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8400 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174084200 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 4908 - 8965 2805 Water Depth: Public Info Code: Y 19-APR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
4908 / 4907	DEF AT first sample examined	DEF AT
5360 / 5358	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT
6920 / 6903	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
8750 / 8247	DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF AT
8965 /	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

815

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 07-MAY-1999 First Sample Examined: 6650 Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 8715 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8112 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174084201 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 6650 - 8035 2805 Water Depth: Public Info Code: Y 25-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: No diagnostic foram markers noted

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6650 / 6646	DEF AT first sample examined	DEF IN 5
8035 / 7728	DEF AT last sample examined	DEF IN 5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

816

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 07-MAY-1999 First Sample Examined: 6650 Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 8715 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8112 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174084201 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 6650 - 8035 2805 Water Depth: Public Info Code: Y 25-APR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, core samples also analyzed

MD / TVD		Paleo Top Description		<u>Ecozone</u>
6650 / 6646	DEF	AT first sample examined	DEF /	ΑT
6950 / 6930	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF /	ΑT
8035 / 7728	DEF	AT last sample examined	DEF /	ΑT

GEOLOGIC

PAGE: 817

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 07-MAY-1999 First Sample Examined: 6650 Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 8035 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7867 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174084202 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 6650 - 8035 2805 Water Depth: Public Info Code: Y 12-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: No diagnostic foram markers noted

MD / TVD		<b>Paleo Top Description</b>		<b>Ecozone</b>
6650 / 6646	DEF	AT first sample examined	DEF A	Γ 5
8035 / 7867	DEF	AT last sample examined	DEF A	Г 5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 818

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 07-MAY-1999 First Sample Examined: 6650 Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 8035 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7867 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174084202 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 6650 - 8035 2805 Water Depth: Public Info Code: Y 12-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Interim calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
6650 / 6646	DEF	AT first sample examined	DEF A	ΑT
6950 / 6943	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF A	ΑT
8035 / 7867	DEF	AT last sample examined	DEF /	ΑT

GEOLOGIC

PAGE: 819

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 4930 Date of Summary: 05-AUG-1999 First Sample Examined: Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 8165 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8165 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174085000 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 4930 - 8165 2835 Water Depth: Public Info Code: Y 26-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TV	<u>′D</u>	Paleo Top Description		<u>Ec</u>	cozone
4930 / 49	930 DEF	AT first sample examined	DEF	AT	5
5050 / 50	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
5200 / 52	POS POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
5440 / 54	POS POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	5
6280 / 62	280 DEF	AT	DEF	AT	4
7810 / 78	310 DEF	AT	DEF	AT	5
8165 / 81	165 DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

820

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 14-OCT-1999 First Sample Examined: 5180 Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 13056 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13055 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174085400 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 5180 - 13056 3085 Water Depth: Public Info Code: Y 21-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

### Remark:

MD / TVD		Paleo Top Description		<u>Ecoz</u>	zone
5180 / 5180	DEF	AT first sample examined	DEF	AT	5
5181 / 5181	DEF	IN Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
5330 / 5330	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
5420 / 5420	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	5
7610 / 7610	POS	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
11180 / 11179	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
12230 / 12229	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
13056 / 13055	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

821

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 243 Date of Summary: 14-OCT-1999 5180 First Sample Examined: Lease Number: G19931 Source of Paleo: OPERATOR **Borehole MD:** 13056 Well Name: 003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13055 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174085400 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 5180 - 13056 3085 Water Depth: Public Info Code: Y 21-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5180 / 5180	DEF AT first sample examined	DEF AT
5181 / 5181	DEF IN Upper Pliocene (Gelasian) Discoaster surculus	DEF AT
5360 / 5360	POS AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
5750 / 5750	DEF AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF AT
5810 / 5810	POS AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
7550 / 7550	DEF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF AT
8960 / 8960	POS AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF AT
11180 / 11179	POS AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF AT
13056 / 13055	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

822

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 285 8580 Date of Summary: 31-JUL-2008 First Sample Examined: Lease Number: G19933 Source of Paleo: OPERATOR 9800 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9799 **Drilling Operator: NOBLE ENERGY INC API Well Number:** 608174115000 **Rkb Elevation:** 78 **Sample Range:** 8580 - 9800 Paleo Report Num: 1 of 1 3004 Water Depth: Public Info Code: Y 04-JAN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD/	TVD		Paleo Top Description		Eco <sub>2</sub>	zone
8580 /	8579	DEF	AT first sample examined	DEF	AT	6
8581 /	8580	DEF	IN Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT	6
8582 /	8581	DEF	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
8610 /	8609	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
8670 /	8669	POS	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
8699 /	8698	POS	AT maximum flooding surface	DEF	AT	6
8700 /	8699	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
9180 /	9179	DEF	AT sequence boundary	DEF	AT	6
9209 /	9208	DEF	AT maximum flooding surface	DEF	AT	6
9210 /	9209	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
9450 /	9449	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	6
9660 /	9659	DEF	AT local marker planktic foram increase	DEF	AT	6
9800 /	9799	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

823

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 292 Date of Summary: 01-JUL-1999 13080 First Sample Examined: Lease Number: G08806 Source of Paleo: OPERATOR **Borehole MD:** 16012 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 15000 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608174083201 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 13080 - 16012 3393 Water Depth: Public Info Code: Y 21-JUL-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
13080 / 12222	DEF	AT first sample examined	DEF	AT	5
13110 / 12250	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
13170 / 12307	DEF	AT	DEF	AT	4
13440 / 12563	DEF	AT transported shelf fauna	DEF	AT	4
14130 / 13213	POS	AT Arenaceous fauna (local marker)	DEF	AT	4
14220 / 13298	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
14370 / 13440	POS	AT local marker foram increase	DEF	AT	4
15090 / 14122	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
15210 / 14236	DEF	AT local marker foram increase	DEF	AT	4
15360 / 14379	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
15420 / 14436	POS	AT local marker foram increase	DEF	IN	4
15450 / 14464	DEF	AT pyrite	DEF	IN	4
15480 / 14493	DEF	AT	DEF	AT	4
15570 / 14578	DEF	AT local marker foram increase	DEF	AT	5
15600 / 14607	DEF	AT	DEF	AT	4
15840 / 14835	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	5
15930 / 14921	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
15960 / 14950	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
15990 / 14979	DEF	AT local marker foram increase	DEF	AT	5
16012 / 15000	DEF	AT last sample examined	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

824

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 292 13020 Date of Summary: 01-JUL-1999 First Sample Examined: Lease Number: G08806 Source of Paleo: OPERATOR 16012 **Borehole MD:** Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 15000 **API Well Number: 608174083201 Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation:** 86 **Sample Range:** 13020 - 16012 3393 Paleo Report Num: 2 of 2 Water Depth: Public Info Code: Y 21-JUL-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 13860=Discoaster extensus, 15900=first persistent Discoaster loeblichii=15090 in the MC292T1 well, nannospecies

abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13020 / 12165	DEF	AT first sample examined	DEF	AT
13021 / 12166	DEF	IN Lower Pliocene	DEF	AT
13080 / 12222	DEF	AT floral flood	DEF	AT
13140 / 12278	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
13740 / 12845	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
13860 / 12958	DEF	AT local marker floral increase	DEF	AT
15120 / 14151	POS	AT local marker floral increase	DEF	AT
15660 / 14664	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
15780 / 14778	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
15900 / 14893	DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
16012 / 15000	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 825

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 292 5820 Date of Summary: 16-MAR-1999 First Sample Examined: Lease Number: G08806 Source of Paleo: OPERATOR 12769 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 004 **Borehole TVD:** 12214 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608174083300 **Rkb Elevation:** 86 **Sample Range:** 5820 - 12750 3393 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 12-APR-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5820 / 5799	DEF	AT first sample examined	DEF	AT
5821 / 5800	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
5940 / 5914	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
6000 / 5971	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
6360 / 6303	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
6480 / 6411	DEF	AT Upper Miocene (Messinian) Triquetrorhabdulus rugosus	DEF	AT
6540 / 6464	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	AT
6600 / 6516	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
7200 / 7028	DEF	IN salt	DEF	AT
10949 / 10396	DEF	AT base of salt	DEF	AT
10950 / 10397	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
11070 / 10516	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11430 / 10875	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
11970 / 11415	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12750 / 12195	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 826

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 292 Date of Summary: 30-MAR-1999 5820 First Sample Examined: Lease Number: G08806 Source of Paleo: OPERATOR 12769 **Borehole MD:** Well Name: 004 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 12214 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608174083300 **Rkb Elevation:** 86 **Sample Range:** 5820 - 12750 Paleo Report Num: 2 of 2 3393 Water Depth: Public Info Code: Y 12-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
5820 / 5799	DEF	AT first sample examined	DEF	IN	3
5821 / 5800	DEF	IN Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	IN	3
5850 / 5828	DEF	AT pyrite	DEF	AT	4
5908 / 5884	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
5909 / 5884	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
5910 / 5885	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
5940 / 5914	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
5970 / 5942	DEF	AT local marker planktic foram increase	DEF	AT	4
6060 / 6027	DEF	AT	DEF	AT	5
6120 / 6083	DEF	AT	DEF	AT	4
6240 / 6194	POS	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	POS	AT	4
6270 / 6222	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	4
6360 / 6303	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	4
6390 / 6331	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
6420 / 6357	DEF	AT	DEF	AT	4
6540 / 6464	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
6570 / 6490	POS	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	AT	4
6600 / 6516	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	4
6780 / 6671	DEF	AT local marker foram increase	DEF	AT	4
6930 / 6799	DEF	AT	DEF	AT	5
6990 / 6850	DEF	AT	DEF	AT	4
7170 / 7003	DEF	AT	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 827

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 292 5820 Date of Summary: 30-MAR-1999 First Sample Examined: Lease Number: G08806 Source of Paleo: OPERATOR 12769 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: 004 **Borehole TVD:** 12214 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608174083300 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 5820 - 12750 3393 Water Depth: Public Info Code: Y 12-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Eco	ozone
7199 / 7028	DEF	IN salt	DEF	AT	4
7200 / 7028	DEF	AT pyrite	DEF	AT	4
10950 / 10397	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
10980 / 10427	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
11100 / 10546	DEF	AT limestone	DEF	AT	5
11130 / 10576	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	4
11550 / 10995	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
11700 / 11145	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
11730 / 11175	DEF	AT pyrite	DEF	AT	4
11820 / 11265	DEF	AT local marker foram increase	DEF	AT	4
11850 / 11295	DEF	AT foram flood	DEF	AT	4
12000 / 11445	DEF	AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT	4
12240 / 11685	DEF	AT	DEF	IN	3
12270 / 11715	DEF	AT	DEF	AT	4
12450 / 11895	DEF	AT	DEF	IN	3
12480 / 11925	DEF	AT	DEF	AT	4
12630 / 12075	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
12690 / 12135	DEF	AT	DEF	IN	3
12750 / 12195	DEF	AT last sample examined	DEF	IN	3

GEOLOGIC 02-FEB-2011

828

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 305 Date of Summary: 23-MAR-1999 First Sample Examined: 9100 Lease Number: G19935 Source of Paleo: OPERATOR **Borehole MD:** 14000 Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13972 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174083400 **Rkb Elevation:** 48 Paleo Report Num: 1 of 2 **Sample Range:** 9100 - 14000 7073 Water Depth: Public Info Code: Y 23-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Aconcagua Prospect

MD / TVD		Paleo Top Description		Ec	ozone
9100 / 9100	DEF	AT first sample examined	POS	AT	6
9101 / 9101	DEF	IN cement	POS	AT	6
9250 / 9250	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
10030 / 10030	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
10330 / 10330	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	6
11440 / 11439	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6
11830 / 11828	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	6
12310 / 12303	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	6
13660 / 13634	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	6
14000 / 13972	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 829

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 305 9100 Date of Summary: 23-MAR-1999 First Sample Examined: Lease Number: G19935 Source of Paleo: OPERATOR 14000 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13972 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608174083400 **Rkb Elevation:** 48 Paleo Report Num: 2 of 2 **Sample Range:** 9100 - 14000 7073 Water Depth: Public Info Code: Y 23-MAR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Aconcagua Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9100 / 9100	DEF	AT first sample examined	DEF	AT
9130 / 9130	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
9190 / 9190	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9220 / 9220	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
9580 / 9580	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
10090 / 10090	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
10690 / 10690	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
10840 / 10840	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
11230 / 11229	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
11586 / 11585	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
11935 / 11932	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
12100 / 12096	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
13690 / 13664	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
14000 / 13972	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

830

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 305 9070 Date of Summary: 10-MAY-2000 First Sample Examined: Lease Number: G19935 Source of Paleo: OPERATOR 14113 **Borehole MD:** Well Name: SS002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13150 **API Well Number:** 608174087500 **Drilling Operator:** TOTAL E&P USA INC **Rkb Elevation:** 91 6997 Paleo Report Num: 1 of 1 **Sample Range:** 9070 - 14113 Water Depth: Public Info Code: Y 28-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Aconcagua Prospect, very rare occurrences of Globorotalia fohsi robusta were noted through the interval 12060-12180 - these occurrences are

believed to be out of place, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
9070 / 9070	DEF	AT first sample examined	DEF	AT	6
9071 / 9071	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
9870 / 9869	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
10590 / 10576	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	6
10620 / 10606	DEF	AT	DEF	AT	5
11400 / 11367	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	5
11910 / 11828	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
12090 / 11967	DEF	AT	DEF	AT	4
13380 / 12738	DEF	AT	DEF	AT	5
13440 / 12772	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
14113 / 13150	DEF	AT last sample examined	DEF	AT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 831

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 348	Date of Summary: 09-SEP-1999	First Sample Examined:	0
Lease Number: G19939	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15080
Well Name: SS001	Paleo Done By: OPERATOR	Borehole TVD:	15079
API Well Number: 608174084800	Drilling Operator: MARATHON OIL COMPANY	Rkb Elevation:	70
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	7209
Public Info Code: Y 03-SEP-2009	Fcozone Fa MMS:	Paleo ID:	001

#### Remark:

MD/TVD	Paleo Top Description	<u>Ecozone</u>
10000 / 10000	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
12000 / 11999	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT
12950 / 12949	DEF AT Middle Miocene (Serravallian) Textularia "W"	DEF AT

**GEOLOGIC** 02-FEB-2011

832

001

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 379 Date of Summary: 30-MAR-2000 First Sample Examined: 8550

Lease Number: G21167 Source of Paleo: OPERATOR 18720 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. 18256 **Borehole TVD:** 

**API Well Number: 608174086500 Drilling Operator: MURPHY EXPLORATION & PRODUCTIO Rkb Elevation:** 82

Paleo Report Num: 1 of 2 **Sample Range:** 8550 - 18720 4316 Water Depth:

Public Info Code: Y 30-JUN-2009 **Ecozone Eg MMS:** Y Paleo ID:

Remark: Stratigraphic interval from 15990 to 18420 is overturned, important species are defined by First Appearance Datum (FAD), not Last Appearance Datum

(LAD), Maastrichtian section exhibits unusual development which may define a remnant section eroded during a early Paleocene transgression prior to being overturned, actual age of interval 17130 TO 17310 may be Campanian, 15990=FAD Hedbergella trochoidea (mid-Aptian), 16140=FAD Favusella washitensis, 16320=FAD Globigerinelloides breggiensis, 16410=FAD Praeglobotruncana delrioensis, 16560=FAD R appenninica (latest Albian-earliest Cenomanian), 16620=FAD Whiteinella paradubia with R grennhornensis, R brotzeni and Praeglobotruncana stephani (latest Middle-Late Cenomanian), 16710=FAD Marginotruncana helvetica, 16770=FAD G fornicata with Marginotruncana angusticarenata, 16800=FAD Globotruncana elevata (latest Santonian-earliest Campanian, 16950=rare FAD Globotruncana ventricosa w/rare Pseudo elegans (Early Campanian), 17130=FAD Pseudoguembelina excolata w/Rugoglobigerina hexacamerata, both rare (Early Maaestrcht), 17190=FAD Globorot inconstans with Globorot pseudobulloides and Globigerina triloculinoides (Early Paleocene), 17340=FAD rare Globorot conicotruncata with rare Globorot praecursoria and Globorot trinidadensis (latest Early-earliest Late Paleocene), 17370=FAD Globorot chapmani w/Globorot pusilla (latest Early-earliest Late Paleocene), 17400=FAD Globorot pseudomenardii (earliest Late Paleocene), 17430=FAD Globigerina linaperta with Globorot velascoensis (mid-Late Paleocene, 17490=FAD Globorot subbotinae, 17520=FAD Glborot quetra, 17610=FAD rare Glborot pentacamerata w/rare Globigerina inaequispira, 17730=FAD Glborot bulbrooki, 17850=FAD Globigerinatheka subconglobata, 17970=FAD Orbul beckmanni (P13), 18030=FAD G cerroazulensis, 18300=FAD G ciperoensis,

18330=FAD G biniaensis, 18390=FAD G peripheroacuta, 18420-18720 appears younger than the G fohsi series, probably Late/Middle Miocene

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8550 / 8550	DEF	AT first sample examined	DEF IN	۸ 6
8610 / 8610	DEF	IN Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF IN	۸ 6
9330 / 9329	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF IN	۸ 6
9840 / 9839	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF IN	۸ 6
12510 / 12448	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF IN	۸ 6
15330 / 15085	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF IN	۸ 6
15750 / 15481	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF IN	۸ 6
15990 / 15707	DEF	IN Lower Cretaceous Aptian Stage	DEF A	T 3
16140 / 15848	DEF	IN Lower Cretaceous Albian Stage	DEF A	T 3
16320 / 16017	DEF	IN Lower Cretaceous Albian Stage	DEF A	T 3
16410 / 16102	DEF	IN Lower Cretaceous Albian Stage	DEF A	T 3
16470 / 16159	DEF	AT faunal change (no faunal increase)	DEF A	T 4

GEOLOGIC 02-FEB-2011 PAGE: 833

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 379 Date of Summary: 30-MAR-2000 First Sample Examined: 8550

Lease Number:G21167Source of Paleo:OPERATORBorehole MD:18720Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:18256

API Well Number: 608174086500 Drilling Operator: MURPHY EXPLORATION & PRODUCTIO Rkb Elevation: 82

Paleo Report Num: 1 of 2 Sample Range: 8550 - 18720 Water Depth: 4316

Public Info Code: Y 30-JUN-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
16530 / 16215	DEF	IN Lower Cretaceous Albian Stage	DEF	AT	4
16560 / 16243	DEF	IN Upper Cretaceous Cenomanian Stage	DEF	AT	4
16620 / 16300	DEF	IN Upper Cretaceous Cenomanian Stage	DEF	AT	4
16710 / 16385	DEF	IN Upper Cretaceous Turonian Stage	DEF	AT	3
16770 / 16441	DEF	IN Upper Cretaceous Santonian Stage	DEF	AT	3
16800 / 16470	DEF	IN Upper Cretaceous Campanian Stage	DEF	AT	3
16950 / 16611	POS	IN Upper Cretaceous Campanian Stage	DEF	AT	3
17130 / 16780	DEF	IN Upper Cretaceous Maastrichtian Stage	DEF	AT	4
17190 / 16836	DEF	IN Upper Cretaceous Maastrichtian Stage	DEF	AT	4
17310 / 16949	DEF	IN Paleocene	DEF	AT	5
17340 / 16977	DEF	IN Paleocene	DEF	AT	5
17370 / 17005	DEF	IN Paleocene	DEF	AT	5
17400 / 17033	DEF	IN Paleocene	DEF	AT	5
17430 / 17061	DEF	IN Paleocene	DEF	AT	5
17490 / 17117	DEF	IN Paleocene	DEF	AT	5
17520 / 17145	DEF	IN Lower (Early) Eocene	DEF	AT	5
17610 / 17229	POS	IN Lower (Early) Eocene	DEF	AT	5
17730 / 17341	DEF	IN Lower (Early) Eocene	DEF	AT	5
17850 / 17453	DEF	IN Middle Eocene	DEF	AT	5
17970 / 17565	DEF	IN Middle Eocene	DEF	AT	5
18030 / 17621	DEF	IN Upper (Late) Eocene	DEF	AT	5
18300 / 17870	DEF	IN Oligocene Vicksburg Group/Provincial Stage	DEF	AT	5
18330 / 17898	DEF	IN Oligocene Anahuac Formation/Provincial Stage	DEF	AT	5
18390 / 17953	DEF	IN Middle Miocene	DEF	AT	5

**GEPALDET** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 834

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 379 Date of Summary: 30-MAR-2000 First Sample Examined: 8550

Source of Paleo: OPERATOR Lease Number: G21167 18720 **Borehole MD:** 

Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18256

**Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174086500 **Rkb Elevation:** 82

Paleo Report Num: 1 of 2 **Sample Range:** 8550 - 18720 4316 Water Depth: Paleo ID: 001

Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y

MD / TVD	Paleo Top Description	<u>Ecozone</u>
18420 / 17981	POS IN Middle Miocene	DEF AT 5
18720 / 18256	DEF AT last sample examined	DEF AT 5

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 835 PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 379 Date of Summary: 30-MAR-2000 First Sample Examined: 8550 Lease Number: G21167 Source of Paleo: OPERATOR 18720 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18256 **API Well Number:** 608174086500 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 8550 - 18720 4316 Water Depth: Public Info Code: Y 30-JUN-2009 002 **Ecozone Eq MMS:** Paleo ID:

Remark: Calcareous nannofossil report, 15870=FAD Nannoconus steinmanni, 16110=FAD Farhania varolii, 16560=FAD Eprolithus floralis (Lower Cenomanian), 16680=FAD Lithraphidites acutus (Middle Cenomanian), 17040=FAD Broinsonia parca parca, 17310=FAD Coccolithus subpertusus (Danian or earliest Paleocene), 17370=FAD Cruciplacolithus tenuis, 17430=FAD Heliolithus kleinpelli (in late Paleocene), 17460=FAD Discoaster multiradiatus (in latest Paleocene), 17580=FAD Discoaster diastypus, 18000=first occurrence of Sphenolithus predistentus, nannospecies abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description		<b>Ecozone</b>
8550 / 8550	DEF	AT first sample examined	DEF	AT
8580 / 8580	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
9270 / 9269	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9870 / 9869	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
11130 / 11127	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
12300 / 12254	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
12780 / 12698	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
15360 / 15113	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
15780 / 15509	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
15870 / 15594	DEF	IN Lower Cretaceous Barremian Stage	DEF	AT
16110 / 15819	DEF	IN Lower Cretaceous Aptian Stage	DEF	AT
16560 / 16243	DEF	IN Lower Cretaceous Albian Stage	DEF	AT
16680 / 16356	DEF	IN Upper Cretaceous Cenomanian Stage	DEF	AT
16740 / 16413	DEF	AT Upper Cretaceous (Maastrichtian) Micula decussata	DEF	AT
17040 / 16696	DEF	IN Upper Cretaceous Campanian Stage	DEF	AT
17310 / 16949	DEF	IN Lower (Early) Paleocene	DEF	AT
17370 / 17005	DEF	IN Lower (Early) Paleocene	DEF	AT
17430 / 17061	DEF	IN Upper (Late) Paleocene	DEF	AT
17460 / 17089	DEF	IN Upper (Late) Paleocene	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 836

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 379 8550 Date of Summary: 30-MAR-2000 First Sample Examined: Lease Number: G21167 Source of Paleo: OPERATOR 18720 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18256 **Drilling Operator:** MURPHY EXPLORATION & PRODUCTIO **API Well Number:** 608174086500 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 8550 - 18720 Water Depth: 4316 Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

MD/TVD		Paleo Top Description		<u>Ecozone</u>
17580 / 17201	DEF	IN Lower (Early) Eocene	DEF	AT
17880 / 17481	POS	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT
18000 / 17593	DEF	AT Upper (Late) Eocene	DEF	AT
18330 / 17898	DEF	AT Oligocene Vicksburg Group/Provincial Stage	DEF	AT
18390 / 17953	DEF	AT Middle Miocene	DEF	AT
18720 / 18256	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 837

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 382 Date of Summary: 05-DEC-2001 First Sample Examined: 7930 Lease Number: G21168 Source of Paleo: OPERATOR **Borehole MD:** 17660 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17660 **Drilling Operator: HESS CORPORATION API Well Number:** 608174094800 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 7930 - 17660 5432 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 30-JUN-2009 Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
7930 / 7930	DEF	AT first sample examined	DEF	AT	6
7931 / 7931	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
8380 / 8380	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
9760 / 9760	DEF	AT	DEF	ΑT	5
9850 / 9850	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	5
11950 / 11950	POS	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	5
12040 / 12040	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	5
13540 / 13539	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	ΑT	5
14620 / 14619	POS	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	ΑT	5
14980 / 14979	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
15940 / 15939	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
16510 / 16508	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
16990 / 16987	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
17639 / 17635	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
17660 / 17656	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 838

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 382 Date of Summary: 05-DEC-2001 7930 First Sample Examined: Lease Number: G21168 Source of Paleo: OPERATOR 17660 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17660 **Drilling Operator: HESS CORPORATION API Well Number:** 608174094800 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 7930 - 17660 5432 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
7930 / 7930	DEF	AT first sample examined	DEF	- AT	
8050 / 8050	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	- AT	
8380 / 8380	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	- AT	
9070 / 9070	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	- AT	
9670 / 9670	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	- AT	
10000 / 10000	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	- AT	
11290 / 11290	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	- AT	
11980 / 11980	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	- AT	
12010 / 12010	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	- AT	
12520 / 12520	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	- AT	
13510 / 13509	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	- AT	
14920 / 14919	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	- AT	
16030 / 16029	POS	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	- AT	
16900 / 16897	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	- AT	
17660 / 17656	DEF	AT last sample examined	DEF	- AT	

GEOLOGIC 02-FEB-2011

839

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 400 2640 Date of Summary: 05-FEB-2002 First Sample Examined: Lease Number: G21755 Source of Paleo: OPERATOR 8207 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7933 **API Well Number:** 608174096100 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 2640 - 8220 Water Depth: 1139 Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 7620=probably displaced by salt movement, foram species abundance and diversity chart available, see report for details

	Paleo Top Description		<u>E</u>	cozone
DEF	AT first sample examined	DEF	AT	4
DEF	AT faunal change (no faunal increase)	DEF	AT	5
DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	ΑT	5
DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	5
DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	ΑT	5
DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
POS	S IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	5
DEF	AT drilling material	DEF	ΑT	5
DEF	AT salt	DEF	ΑT	5
DEF	AT last sample examined	DEF	ΑT	5
	DEF DEF DEF DEF DEF POS DEF	DEF AT first sample examined  DEF AT faunal change (no faunal increase)  DEF AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)  DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea  DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"  DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")  DEF AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"  DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira  POS IN Lower Pliocene (Zanclian) Globigerinoides mitra  DEF AT drilling material  DEF AT salt	DEF AT first sample examined DEF DEF AT faunal change (no faunal increase) DEF DEF AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left) DEF DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea DEF DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B" DEF DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B") DEF DEF AT Upper Pliocene (Gelasian) Bolivina imporcata / "P" DEF DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF DEF AT drilling material DEF DEF AT drilling material DEF DEF AT salt	DEF AT first sample examined DEF AT faunal change (no faunal increase) DEF AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left) DEF AT Lower Pleistocene (Calabrian) Stilostomella antillea DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B" DEF AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B") DEF AT DEF AT Upper Pliocene (Gelasian) Bolivina imporcata / "P" DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira DEF AT DEF AT drilling material DEF AT drilling material DEF AT Salt

GEOLOGIC 02-FEB-2011

840

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 400 Date of Summary: 06-FEB-2002 2640 First Sample Examined: Lease Number: G21755 Source of Paleo: OPERATOR 8207 **Borehole MD:** Well Name: SS001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7933 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608174096100 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 2640 - 8220 Water Depth: 1139 Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
2640 / 2640	DEF	AT first sample examined	DEF	AT
3390 / 3388	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
4260 / 4225	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
4560 / 4503	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
4710 / 4643	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5400 / 5294	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
5910 / 5775	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
6120 / 5972	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6330 / 6170	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
7050 / 6848	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
7590 / 7355	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
7650 / 7411	DEF	AT salt	DEF	AT
8220 /	DEF	AT last sample examined	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 841

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 486 Date of Summary: 13-JUL-2000 First Sample Examined: 0

Lease Number:G06958Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:19300Well Name:A008Paleo Done By:OPERATORBorehole TVD:8309

 Well Name:
 A008
 Paleo Done By:
 OPERATOR
 Borehole TVD:
 8309

 API Well Number:
 608174087300
 Drilling Operator:
 AEDC USA INC
 Rkb Elevation:
 124

 Paleo Report Num:
 1 of 1
 Sample Range:
 0 - 0
 Water Depth:
 582

Public Info Code: Y 06-MAY-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

17046 / 7140 DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B" DEF AT

GEOLOGIC 02-FEB-2011

842

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 489 Date of Summary: 22-FEB-2008 First Sample Examined: 9990 Lease Number: G21762 Source of Paleo: OPERATOR 15719 **Borehole MD:** 13974 Well Name: 006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: LLOG EXPLORATION OFFSHORE LLC **API Well Number:** 608174113500 **Rkb Elevation:** 72 **Sample Range:** 9990 - 15179 2160 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 29-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
9990 / 9970	DEF	AT first sample examined	DEF	AT	5
9991 / 9971	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	5
10140 / 10111	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
10230 / 10194	POS	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	5
13259 / 12336	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	5
13260 / 12336	DEF	IN Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
14518 / 13159	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT	5
14519 / 13160	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	5
14520 / 13160	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	5
14550 / 13180	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	5
14790 / 13338	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	5
14940 / 13438	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
15179 / 13599	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 843

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 493 Date of Summary: 26-AUG-2003 First Sample Examined: 5065 Lease Number: G21763 Source of Paleo: OPERATOR **Borehole MD:** 14700 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14689 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608174101700 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 5065 - 14700 1894 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
5065 / 5064	DEF	AT first sample examined	DEF	AT	5
5125 / 5124	DEF	AT	DEF	IN	5
5190 / 5189	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	IN	5
5340 / 5339	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
5730 / 5729	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	5
5760 / 5759	DEF	AT	DEF	AT	5
6330 / 6328	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
6540 / 6538	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	IN	5
6630 / 6628	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
6660 / 6658	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	IN	5
6720 / 6718	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
6870 / 6868	DEF	AT	DEF	AT	5
6900 / 6898	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
8640 / 8636	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
9180 / 9175	DEF	AT	DEF	AT	5
9360 / 9355	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
9420 / 9415	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
9510 / 9505	DEF	AT	DEF	AT	6
9540 / 9535	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	6
9900 / 9895	DEF	AT	DEF	AT	5
10620 / 10615	POS	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
10740 / 10735	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5

GEOLOGIC

844

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 493 Date of Summary: 26-AUG-2003 First Sample Examined: 5065 Lease Number: G21763 Source of Paleo: OPERATOR **Borehole MD:** 14700 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14689 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608174101700 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 5065 - 14700 1894 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10980 / 10975	DEF AT	DEF AT 5
11400 / 11395	DEF AT	DEF AT 6
13439 / 13431	DEF AT Upper Miocene (Messinian) Textularia tatumi	DEF AT 6
13950 / 13942	POS AT	DEF AT 5
14700 / 14690	DEF AT last sample examined	DEF AT 5

GEOLOGIC 02-FEB-2011 PAGE: 845

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 493 5065 Date of Summary: 26-AUG-2003 First Sample Examined: Lease Number: G21763 Source of Paleo: OPERATOR 14700 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14689 Drilling Operator: MURPHY EXPLORATION & PRODUCTION COMPANY - U **API Well Number:** 608174101700 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 5065 - 14700 1894 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5065 / 5064	DEF	AT first sample examined	DEF	AT
5370 / 5369	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
5460 / 5459	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
6330 / 6328	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6360 / 6358	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
6540 / 6538	POS	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6600 / 6598	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
6660 / 6658	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
6720 / 6718	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
7020 / 7018	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
7170 / 7168	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8540 / 8536	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
9450 / 9445	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
9480 / 9475	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
9900 / 9895	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
10800 / 10795	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
11430 / 11425	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	AT
12150 / 12144	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12750 / 12743	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
13500 / 13492	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
14700 / 14690	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

846

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 496 Date of Summary: 08-SEP-1998 First Sample Examined: 12040 Lease Number: G14005 Source of Paleo: OPERATOR **Borehole MD:** 15100 Well Name: TA001 Paleo Done By: OPERATOR **Borehole TVD:** 15096 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174081700 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 3070 - 15100 1804 Water Depth: Public Info Code: Y 25-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Zia Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12040 / 12039	DEF	AT first sample examined	DEF	AT
12041 / 12040	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
12130 / 12129	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT
13060 / 13059	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
13420 / 13419	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
13750 / 13748	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
14200 / 14198	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
15010 / 15006	DEF	IN Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT
15100 / 15096	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

847

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 496 Date of Summary: 10-SEP-1998 11980 First Sample Examined: Lease Number: G14005 Source of Paleo: OPERATOR 15100 **Borehole MD:** Well Name: TA001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 15096 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174081700 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 11980 - 15070 1804 Water Depth: Public Info Code: Y 25-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Zia Prospect

MD / TVD		Paleo Top Description		1	<u>Ecozone</u>
11980 / 11979	DEF	AT first sample examined	DEF	AT	4
11981 /11980	DEF	IN Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	4
12010 / 12009	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	4
12040 / 12039	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	ΑT	4
12127 / 12126	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	4
12128 / 12127	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	4
12129 / 12128	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	4
12130 / 12129	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	4
14080 / 14078	POS	IN Upper Miocene (Tortonian) Planulina renzi	DEF	ΑT	4
14650 / 14647	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	4
15010 / 15006	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	4
15020 / 15016	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
15070 / 15066	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC

PAGE: 848

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 496 Date of Summary: 07-JAN-1999 First Sample Examined: 14100 Lease Number: G14005 Source of Paleo: OPERATOR **Borehole MD:** 21892 Well Name: TA001 Paleo Done By: LAURALEE R. REUGGER **Borehole TVD:** 17178 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174081702 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 14100 - 21892 1804 Water Depth: Public Info Code: Y 06-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
14100 / 13724	DEF	AT first sample examined	DEF	AT
14101 / 13725	DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
14250 / 13786	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
20500 / 16380	DEF	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
21520 / 16955	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
21580 / 16990	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
21892 / 17178	DEF	AT last sample examined	DEF	AT

GEOLOGIC

PAGE: 849

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 496 Date of Summary: 16-JUL-1999 First Sample Examined: 14100 Lease Number: G14005 Source of Paleo: OPERATOR **Borehole MD:** 21892 17178 Well Name: TA001 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174081702 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 12360 - 21892 1804 Water Depth: Public Info Code: Y 06-DEC-2008 Ecozone Eq MMS: Y Paleo ID: 002

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ecc	zone
14100 / 13724	DEF	AT first sample examined	DEF	AT	4
14101 / 13725	DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	4
16350 / 14619	DEF	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	4
17260 / 15011	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
20500 / 16380	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	4
21520 / 16955	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
21580 / 16990	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	4
21892 / 17178	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

850

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 508 Date of Summary: 02-JAN-2004 First Sample Examined: 14850 Lease Number: G21764 Source of Paleo: OPERATOR **Borehole MD:** 21613 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 21600 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608174102300 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 14850 - 21600 3989 Water Depth: Public Info Code: Y 27-APR-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Hawkes Prospect, calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14850 / 14848	DEF	AT first sample examined	DEF	AT
14851 / 14849	DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
14947 / 14945	DEF	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
14957 / 14955	POS	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
14958 / 14956	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
16440 / 16438	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16620 / 16618	DEF	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT
18180 / 18177	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
18660 / 18657	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
19200 / 19196	DEF	IN Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
19440 / 19436	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
19560 / 19556	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	AT
19620 / 19616	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
20960 / 20951	DEF	AT local marker floral increase	DEF	AT
21150 / 21140	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
21240 / 21229	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21480 / 21468	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
21510 / 21498	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
21600 / 21587	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 851

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 509 10010 Date of Summary: 01-MAR-2002 First Sample Examined: Lease Number: G21765 Source of Paleo: OPERATOR 23143 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23128 **Drilling Operator: EXXON MOBIL CORPORATION API Well Number:** 608174093900 **Rkb Elevation:** 79 **Sample Range:** 10010 - 23173 4174 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 27-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Hawkes Prospect, company-integrated foram and nanno report by T C Huang and C Liu, the sequence stratigraphic zonations of Hardenbol et al (1998)

found in the well are summarized in their report

MD / TVD		Paleo Top Description		į	<u>Ecozone</u>
10010 / 10009	DEF	AT first sample examined	DEF	AT	5
10011 / 10010	DEF	IN Lower Pliocene (Zanclian) Ceratolithus armatus	DEF	AT	5
10370 / 10369	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	ΑT	5
10790 / 10789	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	5
11100 / 11099	DEF	AT	DEF	ΑT	6
13340 / 13339	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	6
13760 / 13759	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	ΑT	6
13880 / 13879	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	ΑT	6
14420 / 14418	DEF	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	ΑT	6
14870 / 14868	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	ΑT	6
16100 / 16098	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	ΑT	6
16160 / 16158	DEF	IN Upper Miocene (Tortonian) Reticulofenestra pseudoumbilica "C"	DEF	AT	6
16220 / 16218	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	ΑT	6
17090 / 17088	DEF	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	ΑT	6
17780 / 17778	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	ΑT	6
18229 / 18227	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	ΑT	6
18230 / 18228	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	6
20510 / 20508	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	ΑT	6
20620 / 20618	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	ΑT	6
20650 / 20648	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	ΑT	6
21609 / 21600	DEF	IN Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6

GEOLOGIC

PAGE: 852

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 509 Date of Summary: 01-MAR-2002 First Sample Examined: 10010 Source of Paleo: OPERATOR Lease Number: G21765 **Borehole MD:** 23143 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23128 **Drilling Operator: EXXON MOBIL CORPORATION API Well Number:** 608174093900 **Rkb Elevation:** 79 Paleo Report Num: 1 of 1 **Sample Range:** 10010 - 23173 4174 Water Depth: Public Info Code: Y 27-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>E</u>	cozone
21610 / 21601	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	6
22140 / 22128	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
22170 / 22158	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	6
23130 / 23114	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	6
23173 /	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

853

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 522 Date of Summary: 22-NOV-1999 15790 First Sample Examined: Lease Number: G08823 Source of Paleo: OPERATOR 17100 **Borehole MD:** Well Name: F002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 16615 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174085800 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 15790 - 17100 6944 Water Depth: Public Info Code: Y 14-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>F</u>	<u>Ecozone</u>
15790 / 15488	DEF	AT first sample examined	DEF	AT	5
15880 / 15564	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
16000 / 15665	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
16030 / 15690	DEF	AT turbid water facies	DEF	ΑT	5
16150 / 15790	DEF	AT local marker planktic foram increase	DEF	ΑT	5
16180 / 15816	DEF	AT	DEF	ΑT	5
16450 / 16046	DEF	AT turbid water facies	DEF	ΑT	5
16480 / 16071	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
16500 / 16088	DEF	AT turbid water facies	DEF	ΑT	5
16570 / 16149	DEF	AT siltstone	DEF	ΑT	5
17050 / 16571	DEF	AT turbid water facies	DEF	ΑT	5
17080 / 16597	DEF	AT out-of-place section	DEF	ΑT	5
17100 / 16615	DEF	AT last sample examined	DEF	ΑT	

GEOLOGIC

PAGE: 854

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 522 Date of Summary: 24-NOV-1999 First Sample Examined: 16790 Lease Number: G08823 Source of Paleo: OPERATOR **Borehole MD:** 17100 Well Name: F002 Paleo Done By: OPERATOR **Borehole TVD:** 16615 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174085800 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 15790 - 17100 6944 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 14-DEC-2009 Paleo ID: 002

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Descr	<u>iption</u>		<u>E</u>	cozone
15790 / 15488	DEF AT first sample exam	nined	DEF	AT	4
15791 / 15489	DEF IN Upper Miocene (7	Tortonian) Coccolithus miopelagicus	DEF	AT	4
15880 / 15564	POS AT Upper Miocene (7	Fortonian) Uvigerina 3	DEF	AT	4
16480 / 16071	POS AT Middle Miocene (	Serravallian) Globorotalia fohsi robusta	DEF	AT	4
17100 / 16615	DEF AT last sample exam	nined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

855

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 522 Date of Summary: 09-DEC-1999 First Sample Examined: 16790 Lease Number: G08823 Source of Paleo: OPERATOR **Borehole MD:** 18261 Well Name: F002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 17829 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174085801 **Rkb Elevation:** 85 Paleo Report Num: 1 of 2 **Sample Range:** 16790 - 18230 6944 Water Depth: Public Info Code: Y 26-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
16790 / 16359	DEF	AT sand	DEF	AT	
16910 / 16479	DEF	AT turbid water facies	DEF	AT	
17000 / 16569	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	IN	4
17001 / 16570	DEF	AT Arenaceous fauna (local marker)	DEF	IN	4
17059 / 16628	DEF	AT pyrite	DEF	IN	4
17060 / 16629	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	IN	4
17210 / 16779	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	IN	4
17300 / 16869	DEF	AT sand	DEF	IN	4
17398 / 16966	DEF	AT	DEF	AT	0
17450 / 17018	DEF	AT	DEF	IN	4
17630 / 17198	DEF	AT turbid water facies	DEF	AT	
17660 / 17228	POS	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	IN	4
17780 / 17348	DEF	AT	DEF	AT	0
17930 / 17498	DEF	AT	DEF	IN	4
17960 / 17528	DEF	AT	DEF	AT	0
17990 / 17558	DEF	AT	DEF	IN	4
18050 / 17618	DEF	AT turbid water facies	DEF	AT	
18200 / 17768	DEF	AT sandstone	DEF	AT	
18230 / 17798	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	

GEOLOGIC

856

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 522 Date of Summary: 09-DEC-1999 First Sample Examined: 16790 Lease Number: G08823 Source of Paleo: OPERATOR **Borehole MD:** 18261 Well Name: F002 Paleo Done By: OPERATOR **Borehole TVD:** 17829 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174085801 **Rkb Elevation:** 85 Paleo Report Num: 2 of 2 **Sample Range:** 16790 - 18260 6944 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 26-DEC-2009 Paleo ID: 002

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ecoz	zone
16790 / 16359	DEF	AT first sample examined	DEF	AT	4
16791 / 16360	POS	AT reworked material	DEF	AT	4
16792 / 16361	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	4
16940 / 16509	POS	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT	4
17000 / 16569	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
17030 / 16599	DEF	IN Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	4
17210 / 16779	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	AT	4
17270 / 16839	POS	AT reworked material	DEF	AT	4
17271 / 16840	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	4
17660 / 17228	POS	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	4
18230 / 17798	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	4
18260 / 17828	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

857

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 553 Date of Summary: 11-FEB-2000 5960 First Sample Examined: Lease Number: G21175 Source of Paleo: OPERATOR 16600 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16600 **Drilling Operator: HESS CORPORATION API Well Number:** 608174086300 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 5960 - 16600 4513 Water Depth: Public Info Code: Y 31-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecoz	one
5960 / 5960	DEF	AT first sample examined	DEF	AT	4
8180 / 8180	DEF	AT	DEF	AT	5
8480 / 8480	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
8540 / 8540	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
8990 / 8990	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
9050 / 9050	DEF	AT	DEF	IN	5
9380 / 9380	DEF	AT	DEF	AT	5
9710 / 9710	POS	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
9830 / 9830	DEF	AT	DEF	AT	6
10880 / 10879	DEF	AT	DEF	AT	5
10910 / 10909	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
12710 / 12709	DEF	AT	DEF	AT	6
13100 / 13099	DEF	AT	DEF	AT	5
13640 / 13639	DEF	AT out-of-place section	DEF	AT	
14000 / 13999	DEF	AT	DEF	AT	4
15650 / 15649	POS	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	4
15860 / 15859	DEF	AT	DEF	AT	5
16250 / 16249	POS	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	5
16600 / 16599	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 858

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 553 5960 Date of Summary: 11-FEB-2000 First Sample Examined: Lease Number: G21175 Source of Paleo: OPERATOR 16600 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16600 **Drilling Operator: HESS CORPORATION API Well Number:** 608174086300 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 5960 - 16600 Water Depth: 4513 Public Info Code: Y 31-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		<b>Ecozone</b>
5960 / 5960 D	EF AT first sample examined	DEF	AT
7940 / 7940 D	EF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8119 / 8119 P	OS AT out-of-place section	DEF	AT
8120 / 8120 P	OS AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
8389 / 8389 P	OS AT out-of-place section	DEF	AT
8390 / 8390 P	OS AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
8391 / 8391 P	OS AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
8480 / 8480 D	EF AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
8540 / 8540 D	EF AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
8930 / 8930 D	EF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9620 / 9620 D	EF AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
9680 / 9680 D	EF AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10310 / 10309 D	EF AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
11210 / 11209 D	EF AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12020 / 12019 D	EF AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
13610 / 13609 D	EF AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
13970 / 13969 D	EF AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
13971 / 13970 D	EF AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
15830 / 15829 P	OS AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16600 / 16599 D	EF AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE:

859

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 555 Date of Summary: 01-MAR-2002 First Sample Examined: 10430 Lease Number: G21770 Source of Paleo: OPERATOR 23105 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23102 **API Well Number: 608174094001 Drilling Operator: EXXON MOBIL CORPORATION Rkb Elevation:** 83 Water Depth: 4749 Paleo Report Num: 1 of 1 **Sample Range:** 10430 - 23105 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Timberwolf Prospect, company-integrated foram and nanno report, 16490=Upper Miocene first acme of Reticulofenestra C, 17930=Upper Miocene Discoaster transitus, 20410=Middle Miocene Globorotalia birnageae, see report for summary table of age-diagnostic bioevents and sequence

stratigraphic identification from 22520 to 23105, pelagic ooze and clay predominates in lower bathyal to abyssal environments

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
10430 / 10429	DEF	AT first sample examined	DEF	AT	5
10431 / 10430	DEF	AT Lower Pliocene (Zanclian) Ceratolithus armatus	DEF	AT	5
10910 / 10909	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
13370 / 13368	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
13670 / 13668	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	6
14090 / 14088	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	6
14990 / 14988	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	6
15560 / 15558	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	6
16490 / 16488	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	6
16550 / 16548	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	6
17450 / 17448	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	6
17930 / 17928	DEF	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT	6
18110 / 18108	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	6
18589 / 18587	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT	6
18590 / 18588	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	6
19429 / 19427	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	6
19430 / 19428	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
20030 / 20028	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
20410 / 20408	POS	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
20810 / 20808	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	6

**GEOLOGIC** 02-FEB-2011

860

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 555 Date of Summary: 01-MAR-2002 First Sample Examined: 10430 Source of Paleo: OPERATOR Lease Number: G21770 **Borehole MD:** 23105 23102 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:**

**Drilling Operator: EXXON MOBIL CORPORATION API Well Number:** 608174094001 **Rkb Elevation:** 

83 Paleo Report Num: 1 of 1 **Sample Range:** 10430 - 23105 4749 Water Depth:

Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
20850 / 20848	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	ΑT	6
21420 / 21418	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
21780 / 21777	DEF	IN Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT	6
21800 / 21797	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
22060 / 22057	DEF	AT faunal change (no faunal increase)	DEF	AT	5
22100 / 22097	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	5
22520 / 22517	DEF	AT faunal change (no faunal increase)	DEF	AT	6
22600 / 22597	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	6
22820 / 22817	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT	6
22860 / 22857	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT	5
22920 / 22917	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
22940 / 22937	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	ΑT	6
22980 / 22977	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	ΑT	6
22990 / 22987	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	AT	6
23060 / 23057	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	6
23070 / 23067	DEF	AT Middle Eocene (Bartonian) Sphenolithus radians	DEF	AT	6
23105 / 23102	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC

861

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 561 Date of Summary: 27-JUL-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G19965 **Borehole MD:** 14774 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 14774 **Drilling Operator: BURLINGTON RESOURCES OFFSHORE INC API Well Number:** 608174092800 **Rkb Elevation:** 73 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 6308 Water Depth: Public Info Code: Y 08-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
12880 / 12880	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
13780 / 13779	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
13960 / 13959	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
14170 / 14169	DEF	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 862

0

15603

15598

73

6266

001

**Ecozone** 

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

MD / TVD

Lease Number: G19965

Area Block: MC 561 Date of Summary: 30-AUG-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 001 Paleo Done By: OPERATOR

API Well Number: 608174092801 Drilling Operator: BURLINGTON RESOURCES OFFSHORE INC

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 08-JAN-2009 Ecozone Eq MMS:

**Paleo Top Description** 

Remark:

13120 / 13119 DEF AT Upper Miocene (Tortonian) Globorotalia lenguaensis DEF AT 14230 / 14225 DEF AT Upper Miocene (Tortonian) Globorotalia mayeri DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 863

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 561 9045 Date of Summary: 10-SEP-2008 First Sample Examined: Lease Number: G19965 Source of Paleo: OPERATOR 14900 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14899 **API Well Number:** 608174114700 **Drilling Operator: NOBLE ENERGY INC Rkb Elevation:** 82 6302 Paleo Report Num: 1 of 1 **Sample Range:** 9045 - 14920 Water Depth: Public Info Code: Y 08-JAN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
9045 / 9045	DEF	AT first sample examined	DEF	AT	5
9046 / 9046	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5
9047 / 9047	POS	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
9349 / 9349	POS	AT maximum flooding surface	DEF	AT	5
9350 / 9350	POS	IN Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT	5
9680 / 9680	POS	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
9888 / 9888	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	5
9889 / 9889	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
9890 / 9890	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
9950 / 9950	DEF	AT	POS	AT	6
9979 / 9979	POS	AT maximum flooding surface	POS	AT	6
9980 / 9980	POS	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	POS	AT	6
10100 / 10100	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	POS	AT	6
10370 / 10370	POS	AT maximum flooding surface	POS	AT	6
10400 / 10400	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	POS	AT	6
10430 / 10430	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	POS	AT	6
10640 / 10640	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	POS	AT	6
10670 / 10670	DEF	AT maximum flooding surface	POS	AT	6
10720 / 10720	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	POS	AT	6
11079 / 11079	POS	AT maximum flooding surface	POS	AT	6
11080 / 11080	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	POS	AT	6
11620 / 11619	POS	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	5

GEOLOGIC 02-FEB-2011

864

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 561 Date of Summary: 10-SEP-2008 First Sample Examined: 9045

Lease Number: G19965 Source of Paleo: OPERATOR Borehole MD: 14900

Well Name: 002 Paleo Done By: PALEO-DATA, INC. Borehole TVD: 14899

API Well Number: 608174114700 Prilling Operator: NORLE ENERGY INC.

API Well Number: 608174114700 Drilling Operator: NOBLE ENERGY INC Rkb Elevation: 82

Paleo Report Num: 1 of 1 Sample Range: 9045 - 14920 Water Depth: 6302

Public Info Code: Y 08-JAN-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco:	zone
11679 / 11678	DEF	AT maximum flooding surface	DEF	AT	5
11680 / 11679	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT	5
12700 / 12699	POS	AT sequence boundary	DEF	AT	5
12969 / 12968	POS	AT maximum flooding surface	DEF	AT	5
12970 / 12969	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	5
13030 / 13029	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	5
13240 / 13239	POS	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
13329 / 13328	DEF	AT unconformity	DEF	AT	5
13330 / 13329	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	5
13480 / 13479	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	4
13540 / 13539	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	4
13870 / 13869	POS	AT sequence boundary	DEF	AT	4
13959 / 13958	DEF	AT maximum flooding surface	DEF	AT	4
13960 / 13959	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	4
14289 / 14288	POS	AT maximum flooding surface	DEF	AT	4
14290 / 14289	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
14650 / 14649	POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
14920 /	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 865

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 561 14506 Date of Summary: 21-JUL-2008 First Sample Examined: Lease Number: G19965 Source of Paleo: OPERATOR 19885 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19883 **Drilling Operator: NOBLE ENERGY INC API Well Number:** 608174114701 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 14506 - 19880 6302 Water Depth: Public Info Code: Y 08-JAN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
14506 / 14505	DEF	AT first sample examined	DEF	AT	4
14530 / 14529	DEF	IN Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	4
17000 / 16998	POS	AT sequence boundary	DEF	AT	4
17090 / 17088	POS	IN Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	4
17208 / 17206	POS	AT maximum flooding surface	DEF	AT	5
17209 / 17207	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT	5
17210 / 17208	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	5
17240 / 17238	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
17420 / 17418	DEF	AT	DEF	AT	4
18200 / 18198	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	4
19220 / 19218	POS	AT maximum flooding surface	DEF	AT	6
19250 / 19248	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
19340 / 19338	DEF	AT	DEF	AT	5
19520 / 19518	POS	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	5
19699 / 19697	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	5
19700 / 19698	POS	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	5
19880 / 19878	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 866

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 Date of Summary: 07-JUN-2000 First Sample Examined: 7100 Lease Number: G16614 Source of Paleo: OPERATOR **Borehole MD:** 10293 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9300 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174087401 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 7100 - 10293 2223 Water Depth: Public Info Code: Y 26-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

<u>MD /</u>	TVD		Paleo Top Description		Eco	zone
7100 /	6746	DEF	AT first sample examined	DEF	AT	5
7101 /	6746	DEF	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
7880 /	7403	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
7910 /	7428	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
7940 /	7454	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
8120 /	7604	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
8210 /	7677	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
8299 /	7749	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
8300 /	7749	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
8479 /	7890	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
8480 /	7891	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
8690 /	8050	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
10293 /	9300	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 867

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 7100 Date of Summary: 09-JUN-2000 First Sample Examined: Lease Number: G16614 Source of Paleo: OPERATOR 10293 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9300 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174087401 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 7100 - 10293 2223 Water Depth: Public Info Code: Y 26-MAR-2010 Ecozone Eq MMS: N Paleo ID: 001

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		<u>Ecozone</u>
7100 /	6746	DEF	AT first sample examined	DEF	AT
7640 /	7199	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7880 /	7403	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7940 /	7454	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
8030 /	7529	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
8090 /	7579	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
8150 /	7628	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
8359 /	7796	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
8360 /	7797	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8540 /	7936	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
9950 /	9035	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10293 /	9300	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 868

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 582	Date of Summary: 07-JUN-2000	First Sample Examined:	10280
Lease Number: G16614	Source of Paleo: OPERATOR	Borehole MD:	10971
Well Name: A001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	9800
API Well Number: 608174087402	<b>Drilling Operator: MURPHY EXPLORATION &amp; PRODUCTIO</b>	Rkb Elevation:	74
Paleo Report Num: 1 of 2	Sample Range: 10280 - 10971	Water Depth:	2223
Public Info Code: Y 28-APR-2010	Ecozone Ea MMS: Y	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
10280 / 9268	DEF	AT first sample examined	DEF	AT	5
10281 / 9269	DEF	IN Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
10282 / 9269	DEF	IN Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	AT	5
10971 / 9800	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 869

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 10310 Date of Summary: 09-JUN-2000 First Sample Examined: Lease Number: G16614 Source of Paleo: OPERATOR 10971 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9800 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174087402 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 10310 - 10971 2223 Water Depth: Public Info Code: Y 28-APR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>	Paleo Top Description	<u>Ecozone</u>
10310 / 9292	DEF AT first sample examined	DEF AT
10880 / 9734	DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF AT
10971 / 9800	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 870

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 Date of Summary: 07-JUN-2000 First Sample Examined: 10270 Lease Number: G16614 Source of Paleo: OPERATOR **Borehole MD:** 14100 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12402 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174087404 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 10270 - 14100 2223 Water Depth: Public Info Code: Y 23-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
10270 / 9260	DEF	AT first sample examined	DEF	AT	5
10570 / 9509	POS	IN Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
10690 / 9607	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
10780 / 9680	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
10810 / 9705	DEF	AT local marker benthic foram increase	DEF	AT	5
10900 / 9778	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
11030 / 9883	DEF	AT local marker foram increase	DEF	IN	5
11090 / 9931	DEF	AT faunal change (no faunal increase)	DEF	AT	6
11420 / 10196	POS	IN Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	6
11930 / 10606	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
12320 / 10923	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
12650 / 11192	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
14060 / 12368	POS	AT Upper Miocene (Tortonian) Planulina renzi	DEF	AT	6
14100 / 12402	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

PAGE: 871

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 Date of Summary: 09-JUN-2000 10270 First Sample Examined: Lease Number: G16614 Source of Paleo: OPERATOR 14100 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12402 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174087404 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 10270 - 14100 2223 Water Depth: Public Info Code: Y 23-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
10270 / 9260	DEF	AT first sample examined	DEF	AT
10271 / 9261	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
11000 / 9858	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11360 / 10148	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12290 / 10899	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12980 / 11465	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	AT
14100 / 12402	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 872

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 5760 Date of Summary: 23-NOV-1999 First Sample Examined: Lease Number: G16614 Source of Paleo: OPERATOR 12115 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10446 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174085202 **Rkb Elevation:** 74 **Sample Range:** 5760 - 12115 Paleo Report Num: 1 of 2 2223 Water Depth: Public Info Code: Y 14-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description		<b>Ecozone</b>
5760 / 5760	DEF	AT first sample examined	DEF	AT
6120 / 6119	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
6330 / 6327	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7690 / 7555	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7720 / 7577	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7930 / 7726	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
8020 / 7785	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
8080 / 7822	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
8350 / 7983	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8530 / 8091	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
10960 / 9668	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
12115 / 10446	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

873

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 Date of Summary: 24-NOV-1999 First Sample Examined: 5760 Lease Number: G16614 Source of Paleo: OPERATOR **Borehole MD:** 12115 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10446 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174085202 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 5760 - 12115 2223 Water Depth: Public Info Code: Y 14-DEC-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>Ecoz</u>	<u>:one</u>
5760 / 5760	DEF	AT first sample examined	DEF	AT	5
6060 / 6059	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
6120 / 6119	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
6880 / 6854	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
7000 / 6965	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
7630 / 7509	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
7930 / 7726	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
8139 / 7858	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
8140 / 7858	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
8259 / 7929	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	IN	5
8260 / 7930	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
8380 / 8001	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
8470 / 8055	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
8860 / 8288	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
8980 / 8364	DEF	AT poor sample interval top	POS	IN	5
11620 / 10110	DEF	AT poor sample interval bottom	DEF	IN	5
12115 / 10446	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 874

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 Date of Summary: 25-OCT-1999 First Sample Examined: 6210 Lease Number: G16623 Source of Paleo: OPERATOR **Borehole MD:** 16950 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15621 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174085200 **Rkb Elevation:** 74 Paleo Report Num: 1 of 2 **Sample Range:** 6210 - 16950 2223 Water Depth: Public Info Code: Y 16-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
6210 / 6210	DEF	AT first sample examined	DEF	IN	5
6211 / 6211	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	IN	5
6450 / 6450	DEF	AT	DEF	ΑT	5
6540 / 6540	DEF	AT	DEF	ΑT	4
6810 / 6810	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	ΑT	4
7650 / 7650	DEF	AT	DEF	ΑT	5
7680 / 7680	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	ΑT	5
7740 / 7740	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
7860 / 7859	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	5
8190 / 8188	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
10620 / 10436	DEF	AT	DEF	ΑT	6
10650 / 10460	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
10710 / 10508	POS	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	ΑT	6
11280 / 10968	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
11790 / 11381	DEF	AT	DEF	ΑT	5
12930 / 12313	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	5
16110 / 14916	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	5
16950 / 15621	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 875

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 582 Date of Summary: 25-OCT-1999 6210 First Sample Examined: Lease Number: G16623 Source of Paleo: OPERATOR 16950 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 15621 **Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number:** 608174085200 **Rkb Elevation:** 74 Paleo Report Num: 2 of 2 **Sample Range:** 6210 - 16950 2223 Water Depth: Public Info Code: Y 16-NOV-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6210 / 6210	DEF	AT first sample examined	DEF	AT
6211 / 6211	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
7530 / 7530	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7680 / 7680	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7710 / 7710	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
7740 / 7740	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
7770 / 7770	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
7800 / 7800	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
8010 / 8009	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8190 / 8188	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
9600 / 9566	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
10710 / 10508	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
11310 / 10992	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12840 / 12239	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
14100 / 13260	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
16080 / 14892	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
16500 / 15237	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16620 / 15338	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
16650 / 15363	DEF	AT salt	DEF	AT
16950 / 15621	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 876

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 583 4058 Date of Summary: 01-NOV-1998 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G16624 11300 **Borehole MD:** Well Name: 001 Paleo Done By: MICRO-STRAT **Borehole TVD:** 11300 **API Well Number:** 608174081800 **Drilling Operator:** MARINER ENERGY INC **Rkb Elevation:** 84 Paleo Report Num: 1 of 1 **Sample Range:** 4058 - 11270 Water Depth: 2485 Public Info Code: Y 22-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, 6520=Globorotalia tosaensis acme, 11200=Globigerina mitra (low)

MD/	TVD		Paleo Top Description		Eco	<u>zone</u>
4058 /	4058	DEF	AT first sample examined	DEF	IN	4
4059 /	4059	DEF	AT Middle Pleistocene (Ionian) Crenalithus doronicoides (flood)	DEF	IN	4
4060 /	4060	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	
5260 /	5259	DEF	AT Upper Pleistocene (Ionian) Helicosphaera inversa	DEF	IN	4
5650 /	5649	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	IN	4
6520 /	6519	DEF	AT local marker planktic foram increase	DEF	IN	4
6521 /	6520	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	IN	4
7420 /	7418	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania annula (large)	DEF	IN	4
7480 /	7478	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	IN	4
7540 /	7538	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	IN	4
7570 /	7568	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	IN	4
7750 /	7748	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	4
7840 /	7838	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	4
7900 /	7898	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	IN	4
8020 /	8018	DEF	AT reworked material	DEF	IN	4
8021 /	8019	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	4
8080 /	8078	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	IN	4
8083 /	8081	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	IN	4
8084 /	8082	DEF	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	4
8410 /	8408	DEF	AT local marker floral increase	DEF	IN	4
9040 /	9038	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	IN	4
9820 /	9818	DEF	IN Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	4

**GEOLOGIC** 02-FEB-2011

877

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 583 Date of Summary: 01-NOV-1998 First Sample Examined: 4058 Source of Paleo: OPERATOR Lease Number: G16624 **Borehole MD:** 11300 Well Name: 001 Paleo Done By: MICRO-STRAT **Borehole TVD:** 11300 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608174081800 **Rkb Elevation:** 84 **Sample Range:** 4058 - 11270 Paleo Report Num: 1 of 1 2485 Water Depth: Paleo ID: 001

Public Info Code: Y 22-SEP-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
10090 / 10088	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	IN	4
10300 / 10298	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	IN	4
11170 / 11167	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	IN	4
11171 / 11168	DEF	IN Upper Miocene (Messinian) Textularia "X"	DEF	IN	4
11200 / 11197	DEF	AT local marker (general)	DEF	IN	4
11270 / 11267	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 878

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 595 8035 Date of Summary: 08-JAN-2001 First Sample Examined: Lease Number: G21177 Source of Paleo: OPERATOR 15725 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15240 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC API Well Number:** 608174089800 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 8035 - 15698 Water Depth: 4608 Public Info Code: Y 31-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
8035 / 8035	DEF	AT first sample examined	DEF	AT	5
8070 / 8070	DEF	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	ΑT	5
8340 / 8340	DEF	AT faunal change (no faunal increase)	DEF	IN	5
8520 / 8520	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	ΑT	6
9210 / 9210	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	6
9480 / 9480	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	6
11040 / 11040	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
12290 / 12277	DEF	AT faunal change (no faunal increase)	DEF	IN	5
12500 / 12471	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
14120 / 13862	POS	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	ΑT	5
14510 / 14195	DEF	AT faunal change (no faunal increase)	DEF	IN	5
14870 / 14504	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
15200 / 14789	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
15320 / 14892	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	5
15698 / 15217	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 879

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 595 8035 Date of Summary: 08-JAN-2001 First Sample Examined: Lease Number: G21177 Source of Paleo: OPERATOR 15725 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15240 **API Well Number: 608174089800 Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 8035 - 15698 Water Depth: 4608 Public Info Code: Y 31-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8035 / 8035	DEF	AT first sample examined	DEF	AT
8036 / 8036	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
8310 / 8310	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
8820 / 8820	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
9210 / 9210	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9450 / 9450	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
11070 / 11070	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
12230 / 12220	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
14210 / 13939	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
14330 / 14042	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
14540 / 14220	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
15698 / 15217	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 880

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 687 Date of Summary: 18-JUN-1998 First Sample Examined: 13130 Lease Number: G05863 Source of Paleo: OPERATOR **Borehole MD:** 20574 Well Name: A002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19101 **Drilling Operator: SHELL DEEPWATER PRODUCTION INC API Well Number:** 608174054000 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 13130 - 20573 5292 Water Depth: Public Info Code: Y 15-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
13220 / 13219	DEF	AT first sample examined	POS	AT	4
13250 / 13249	DEF	AT faunal change (no faunal increase)	DEF	AT	4
13370 / 13369	DEF	AT faunal change (no faunal increase)	DEF	IN	3
13430 / 13429	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	3
13520 / 13518	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	3
13610 / 13607	DEF	AT local marker foram increase	DEF	ΑT	4
13910 / 13898	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14090 / 14067	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
14180 / 14149	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14300 / 14256	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	4
14390 / 14334	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14450 / 14384	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
14540 / 14457	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14630 / 14527	DEF	AT faunal change (no faunal increase)	POS	AT	4
14780 / 14641	DEF	AT faunal change (no faunal increase)	DEF	IN	3
14810 / 14663	POS	AT local marker foram increase	DEF	IN	3
14870 / 14708	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15140 / 14908	DEF	AT faunal change (no faunal increase)	DEF	IN	3
15320 / 15042	DEF	AT sample gap top	POS	IN	3
15331 / 15050	DEF	AT sample gap bottom	DEF	ΑT	3
15480 / 15162	DEF	AT faunal change (no faunal increase)	POS	AT	4
16260 / 15770	DEF	AT local marker foram increase	DEF	AT	4

GEOLOGIC 02-FEB-2011

881

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 687 13130 Date of Summary: 18-JUN-1998 First Sample Examined: Lease Number: G05863 Source of Paleo: OPERATOR 20574 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: A002 **Borehole TVD:** 19101 **Drilling Operator: SHELL DEEPWATER PRODUCTION INC API Well Number:** 608174054000 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 13130 - 20573 5292 Water Depth: Public Info Code: Y 15-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		<u>E</u>	cozone
19170 / 18000	DEF	AT faunal change (no faunal increase)	DEF	IN	3
19200 / 18023	DEF	AT faunal change (no faunal increase)	DEF	AT	4
19410 / 18183	DEF	AT faunal change (no faunal increase)	DEF	AT	4
19680 / 18393	DEF	AT local marker foram increase	DEF	AT	4
19681 / 18394	POS	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	4
19770 / 18466	DEF	AT local marker foram increase	DEF	AT	4
20250 / 18846	DEF	AT sample gap top	POS	AT	4
20400 / 18963	DEF	AT sample gap bottom	DEF	AT	4
20573 / 19100	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

882

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 687 Date of Summary: 28-OCT-1998 First Sample Examined: 13130 Lease Number: G05863 Source of Paleo: OPERATOR **Borehole MD:** 20574 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 19101 **Drilling Operator: SHELL DEEPWATER PRODUCTION INC API Well Number:** 608174054000 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 13130 - 20573 5292 Water Depth: Public Info Code: Y 15-JUL-2008 Ecozone Eq MMS: Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
13130 / 13129	DEF	AT first sample examined	POS	IN	3
14210 / 14176	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	IN	3
14211 / 14177	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	IN	3
14300 / 14256	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	4
15899 / 15486	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	4
15900 / 15487	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
15930 / 15511	DEF	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	4
15931 / 15512	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	4
17160 / 16468	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	4
17161 / 16468	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
18780 / 17703	DEF	IN Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
19740 / 18442	POS	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT	4
19741 / 18443	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
20573 / 19100	DEF	AT last sample examined	DEF	AT	4

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 883

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 7846 Date of Summary: 01-FEB-1999 First Sample Examined: Lease Number: G14016 Source of Paleo: OPERATOR 13073 **Borehole MD:** Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 12400 **API Well Number: 608174083000** Drilling Operator: ANADARKO E&P COMPANY LP **Rkb Elevation:** 78 **Sample Range:** 7846 - 12074 Water Depth: 2955 Paleo Report Num: 1 of 4 Public Info Code: Y 15-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: The section between 9910 and 10150 is condensed but apparently complete, expanded as compared to Mississippi Canyon Block 755, well 1,

10360=first four-chambered Sphaeroidinellopsis seminulina, foram species abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		Eco	<u>ozone</u>
7846 /	7631	DEF	AT first sample examined	DEF	AT	6
7847 /	7631	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	6
8080 /	7818	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	6
8530 /	8177	DEF	AT faunal change (no faunal increase)	DEF	AT	5
8800 /	8389	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
9220 /	8726	DEF	AT local marker planktic foram increase	DEF	AT	6
9430 /	8898	DEF	AT reworked material	DEF	AT	5
9580 /	9025	DEF	AT reworked material	DEF	AT	5
9760 /	9181	DEF	AT local marker foram increase	DEF	AT	6
9850 /	9260	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	6
9910 /	9313	DEF	AT condensed section	DEF	AT	6
9911 /	9314	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	6
9970 /	9367	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
10000 /	9394	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	6
10060 /	9448	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	6
10150 /	9530	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	6
10151 /	9531	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	6
10210 /	9585	POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	6
10240 /	9613	DEF	AT faunal change (no faunal increase)	DEF	AT	5
10360 /	9724	DEF	AT local marker planktic foram increase	DEF	AT	5
10750 /	10095	DEF	AT cement	POS	AT	5

GEOLOGIC 02-FEB-2011

884

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 01-FEB-1999 First Sample Examined: 7846 Lease Number: G14016 Source of Paleo: OPERATOR **Borehole MD:** 13073 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 12400 Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number:** 608174083000 **Rkb Elevation:** 78 Paleo Report Num: 1 of 4 **Sample Range:** 7846 - 12074 2955 Water Depth: Public Info Code: Y 15-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u> </u>	<u>cozone</u>
10810 / 10152	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
11770 / 11098	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
11950 / 11278	DEF	AT local marker foram increase	DEF	ΑT	5
12070 / 11397	DEF	AT faunal change (no faunal increase)	POS	ΑT	5
12074 / 11401	DEF	AT last sample examined	POS	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 885

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 01-FEB-1999 First Sample Examined: 12080 Lease Number: G14016 Source of Paleo: OPERATOR **Borehole MD:** 13073 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 12400 **API Well Number: 608174083000 Drilling Operator:** ANADARKO E&P COMPANY LP **Rkb Elevation:** 78 Paleo Report Num: 2 of 4 **Sample Range:** 12080 - 13073 2955 Water Depth: Public Info Code: Y 15-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Bypass 1 report, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
12080 / 11407	DEF	AT first sample examined	DEF	AT	
12490 / 11817	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	4
12520 / 11847	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
12580 / 11907	DEF	AT local marker foram increase	DEF	AT	5
12640 / 11967	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
12700 / 12027	DEF	AT	DEF	AT	6
12820 / 12147	DEF	AT local marker foram increase	DEF	AT	6
12850 / 12177	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	5
13073 / 12400	DEF	AT last sample examined	DEF	AT	5

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 886

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 01-FEB-1999 7846 First Sample Examined: Lease Number: G14016 Source of Paleo: OPERATOR 13073 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 12400 **API Well Number: 608174083000** Drilling Operator: ANADARKO E&P COMPANY LP **Rkb Elevation:** 78 Paleo Report Num: 3 of 4 **Sample Range:** 7846 - 12074 2955 Water Depth: Public Info Code: Y 15-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, 11560=Helicosphaera rhomba consistent (local), nannospecies abundance and diversity chart available, see report for

MD/	TVD		Paleo Top Description		<b>Ecozone</b>
7846 /	7631	DEF	AT first sample examined	DEF	AT
7847 /	7631	DEF	IN Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
7870 /	7650	DEF	AT local marker floral increase	DEF	AT
7990 /	7745	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
8050 /	7793	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
8080 /	7818	DEF	IN Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9280 /	8775	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9760 /	9181	DEF	AT local marker floral increase	DEF	AT
9880 /	9287	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9910 /	9313	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
10030 /	9421	DEF	IN Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10090 /	9476	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
10150 /	9530	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10330 /	9696	DEF	AT reworked material	DEF	AT
10331 /	9697	POS	AT Upper (Late) Miocene	DEF	AT
10390 /	9752	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies (acme)	DEF	AT
10630 /	9980	DEF	AT Lower Pliocene (Zanclian) Sphenolithus grandis	DEF	AT
11350 /	10680	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
11560 /	10888	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies (acme)	DEF	AT
12070 /	11397	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

887

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 01-FEB-1999 12070 First Sample Examined: Lease Number: G14016 Source of Paleo: OPERATOR **Borehole MD:** 13073 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 12400 **API Well Number: 608174083000** Drilling Operator: ANADARKO E&P COMPANY LP **Rkb Elevation:** 78 Paleo Report Num: 4 of 4 **Sample Range:** 11481 - 13073 2955 Water Depth: Public Info Code: Y 15-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 004

Remark: Calcareous nannofossil report for bypass 1, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12070 / 11397	DEF AT first sample examined	DEF AT
12610 / 11937	DEF AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF AT
13060 / 12387	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

888

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 01-JUN-2000 First Sample Examined: 11500 Lease Number: G14016 Source of Paleo: OPERATOR **Borehole MD:** 12600 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 004 **Borehole TVD:** 11838 Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number:** 608174087600 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 11500 - 12590 2972 Water Depth: Public Info Code: Y 03-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
11500 / 10842	DEF	AT first sample examined	DEF	AT	4
11501 / 10843	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
11560 / 10895	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	4
11620 / 10947	DEF	AT local marker (general)	DEF	AT	4
11709 / 11026	DEF	AT limestone	DEF	AT	5
11710 /11027	DEF	AT local marker foram increase	DEF	AT	5
11770 /11080	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
11800 / 11107	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
11830 / 11134	DEF	AT pyrite	DEF	AT	5
11831 / 11135	DEF	AT limestone	DEF	AT	5
11890 / 11189	DEF	AT local marker planktic foram increase	DEF	AT	5
11980 / 11271	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
12010 / 11299	DEF	AT local marker planktic foram increase	DEF	AT	5
12040 / 11326	DEF	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	AT	5
12070 / 11353	DEF	AT pyrite	DEF	AT	5
12280 / 11545	DEF	AT pyrite	DEF	AT	5
12410 / 11663	DEF	AT	DEF	AT	4
12500 / 11746	DEF	AT sand	DEF	AT	4
12590 / 11828	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC

02-FEB-2011 PAGE: 889

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 01-JUL-2000 First Sample Examined: 11500 Lease Number: G14016 Source of Paleo: OPERATOR **Borehole MD:** 12600 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 004 **Borehole TVD:** 11838 Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number:** 608174087600 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 11500 - 12590 2972 Water Depth: Public Info Code: Y 03-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11500 / 10842	DEF	AT first sample examined	DEF	AT
11501 / 10843	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11710 /11027	DEF	AT reworked material	DEF	AT
11830 / 11134	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
12010 /11299	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12250 / 11517	DEF	AT reworked material	DEF	AT
12560 / 11801	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

890

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 711 Date of Summary: 29-NOV-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14016 **Borehole MD:** 13146 Well Name: SS005 Paleo Done By: OPERATOR **Borehole TVD:** 13140 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608174089600 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 2951 Water Depth: Public Info Code: Y 24-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9120 / 9115	DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF AT
9360 / 9355	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
9450 / 9445	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT
10800 / 10794	DEF AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF AT
11800 / 11794	DEF AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF AT
12330 / 12324	DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF AT
12570 / 12564	DEF AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 891

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 751 Date of Summary: 15-JAN-2003 First Sample Examined: 4070 Lease Number: G22899 Source of Paleo: OPERATOR **Borehole MD:** 10986 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10971 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 608174100400 **Rkb Elevation:** 84 **Sample Range:** 4070 - 10986 Paleo Report Num: 1 of 2 1624 Water Depth: Public Info Code: Y 09-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
4070 / 4070	DEF	AT first sample examined	DEF	AT	4
5900 / 5900	DEF	AT sample gap top	POS	AT	4
6350 / 6350	DEF	AT sample gap bottom	DEF	AT	5
7130 / 7130	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8450 / 8450	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
9590 / 9590	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
10039 / 10039	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
10040 / 10040	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
10130 / 10130	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10340 / 10339	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
10986 / 10985	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

892

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 751 Date of Summary: 15-JAN-2003 4070 First Sample Examined: Lease Number: G22899 Source of Paleo: OPERATOR 10986 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10971 **API Well Number:** 608174100400 Drilling Operator: MARINER GULF OF MEXICO LLC **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 4070 - 10986 1624 Water Depth: Public Info Code: Y 09-APR-2008 Ecozone Eq MMS: N Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	Ecozone
4070 / 4070	DEF AT first sample examined	DEF AT
5900 / 5900	DEF AT sample gap top	DEF AT
6350 / 6350	DEF AT sample gap bottom	DEF AT
7910 / 7910	DEF AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF AT
8420 / 8420	DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF AT
8960 / 8960	DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF AT
9590 / 9590	DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF AT
10130 / 10130	DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF AT
10250 / 10250	DEF AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
10985 / 10984	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

893

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 751 Date of Summary: 22-JAN-2003 10820 First Sample Examined: Lease Number: G22899 Source of Paleo: OPERATOR 14288 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14256 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 608174100401 **Rkb Elevation:** 84 Paleo Report Num: 1 of 2 **Sample Range:** 10820 - 14288 1624 Water Depth: Public Info Code: Y 09-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	Ecozone	
10820 / 10805	DEF AT first sample examined	DEF AT 5	
11960 / 11936	POS IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF AT 5	
12140 / 12113	DEF AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF AT 6	
12650 / 12619	DEF AT faunal change (no faunal increase)	DEF AT 5	
14288 / 14256	DEF AT last sample examined	DEF AT 5	

GEOLOGIC 02-FEB-2011

894

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 751 10820 Date of Summary: 23-JAN-2003 First Sample Examined: Lease Number: G22899 Source of Paleo: OPERATOR 14288 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14256 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 608174100401 **Rkb Elevation:** 84 Paleo Report Num: 2 of 2 **Sample Range:** 10820 - 14288 Water Depth: 1624 Public Info Code: Y 09-APR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
10820 / 10805	DEF	AT first sample examined	DEF	AT
11510 / 11492	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11990 / 11965	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
12140 / 12113	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
14060 / 14028	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
14288 / 14256	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 895

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 01-JUL-1998 First Sample Examined: 5340 Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 17580 Paleo Done By: APPLIED BIOSTRATIGRAPHIX 17100 Well Name: 004 **Borehole TVD:** Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174058700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 5340 - 17580 3283 Water Depth: Public Info Code: Y 18-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: 8160=Globorotalia incisa acme

MD / TVD		Paleo Top Description		Eco	ozone
5340 / 5340	DEF	AT first sample examined	POS	AT	3
5430 / 5430	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	4
5580 / 5580	DEF	AT local marker foram decrease	DEF	AT	3
5640 / 5640	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
5820 / 5820	DEF	AT local marker foram increase	DEF	AT	6
5940 / 5940	DEF	AT faunal change (no faunal increase)	DEF	AT	5
6150 / 6150	DEF	AT faunal change (no faunal increase)	DEF	AT	4
6360 / 6360	DEF	AT faunal change (no faunal increase)	DEF	AT	5
6570 / 6570	DEF	AT local marker foram increase	DEF	AT	5
6990 / 6990	DEF	AT local marker foram decrease	DEF	AT	5
7140 / 7140	DEF	AT faunal change (no faunal increase)	DEF	AT	4
7470 / 7470	DEF	AT local marker foram increase	DEF	AT	5
7500 / 7500	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
7920 / 7920	DEF	AT faunal change (no faunal increase)	DEF	AT	4
8040 / 8040	DEF	AT local marker foram increase	DEF	AT	6
8070 / 8070	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	6
8160 / 8160	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	6
8280 / 8280	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	6
8310 / 8310	DEF	AT faunal change (no faunal increase)	DEF	AT	6
8370 / 8370	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	6
8520 / 8520	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
8570 / 8570	DEF	AT condensed section	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 896

Paleo ID:

003

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 01-JUL-1998 First Sample Examined: 5340 Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 17580 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 004 **Borehole TVD:** 17100 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174058700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 5340 - 17580 3283 Water Depth:

Public Info Code: Y 18-MAR-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>E</u>	cozone
8580 / 8580	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DE	ΞF	AT	6
8610 / 8610	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DE	ΞF	AT	6
8670 / 8670	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DE	ΞF	AT	6
9510 / 9510	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DE	ΞF	AT	6
9540 / 9540	POS	AT reworked material	DE	ΞF	AT	6
9541 / 9541	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DE	ΞF	AT	6
9600 / 9600	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DE	ΞF	AT	6
10020 / 10020	DEF	AT faunal change (no faunal increase)	PC	SC	AT	6
10200 / 10200	POS	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DE	ΞF	AT	6
10230 / 10230	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DE	ΞF	AT	6
10560 / 10559	POS	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DE	ΞF	ΑT	6
10740 / 10739	DEF	AT faunal change (no faunal increase)	DE	ΞF	ΑT	5
10860 / 10859	DEF	AT local marker foram increase	DE	ΞF	ΑT	5
10890 / 10889	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DE	ΞF	ΑT	5
11130 / 11129	DEF	AT transported outer shelf facies	DE	ΞF	ΑT	4
11580 / 11579	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DE	ΞF	ΑT	5
12300 / 12292	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DE	ΞF	ΑT	5
12630 / 12611	DEF	AT faunal change (no faunal increase)	DE	ΞF	AT	4
12690 / 12669	DEF	AT local marker foram decrease	DE	ΞF	AT	4
12780 / 12756	DEF	AT faunal change (no faunal increase)	DE	ΞF	AT	5
12900 / 12870	DEF	AT faunal change (no faunal increase)	DE	ΞF	AT	4
14340 / 14191	DEF	AT local marker planktic foram increase	DE	ΞF	AT	5
14400 / 14244	DEF	AT local marker planktic foram increase	DE	ΞF	ΑT	5
14580 / 14406	DEF	AT transported outer shelf facies	DE	ΞF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 897

Paleo ID:

003

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 01-JUL-1998 First Sample Examined: 5340 Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 17580 Paleo Done By: APPLIED BIOSTRATIGRAPHIX 17100 Well Name: 004 **Borehole TVD:** Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174058700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 5340 - 17580 3283 Water Depth:

Public Info Code: Y 18-MAR-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco	zone
14640 / 14459	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
14700 / 14513	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14880 / 14675	DEF	AT local marker foram decrease	DEF	AT	4
15120 / 14891	POS	IN Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT	4
15480 / 15216	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
15780 / 15489	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	5
16049 / 15735	DEF	AT foram flood	DEF	AT	5
16050 / 15736	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	AT	5
16110 / 15791	DEF	AT faunal change (no faunal increase)	DEF	AT	5
16410 / 16064	DEF	AT faunal change (no faunal increase)	DEF	AT	4
16470 / 16117	DEF	AT Eggerella 3 (local marker)	DEF	AT	4
16530 / 16170	POS	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	4
16770 / 16380	DEF	AT faunal change (no faunal increase)	DEF	AT	5
16830 / 16433	DEF	AT foram flood	DEF	AT	5
16980 / 16564	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
17100 / 16670	DEF	AT Eggerella 3 (local marker)	DEF	AT	4
17340 / 16884	DEF	AT faunal change (no faunal increase)	POS	AT	4
17580 / 17100	DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 898

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 25-AUG-1998 First Sample Examined: 5430 Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 17580 17100 Well Name: 004 Paleo Done By: OPERATOR **Borehole TVD:** Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174058700 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 5430 - 14000 3283 Water Depth: Public Info Code: Y 18-MAR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 12600=Discoaster preberggrenii, 12800=assemblage A, 14000=assemblage B

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5430 / 5430	DEF	AT first sample examined	DEF	AT
5431 / 5431	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8280 / 8280	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8340 / 8340	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
8520 / 8520	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
8580 / 8580	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9240 / 9240	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
10260 / 10259	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
10980 / 10979	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12060 / 12058	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT
12600 / 12583	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
12700 / 12679	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
12800 / 12775	DEF	AT local marker floral increase	DEF	AT
14000 / 13886	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 899

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 01-JUL-1998 15510 First Sample Examined: Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 20796 Well Name: 004 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 20016 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174058701 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 15510 - 20796 3283 Water Depth: Public Info Code: Y 10-AUG-2008 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	ozone
15510 / 15016	DEF	AT first sample examined	DEF	AT	4
15511 / 15016	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	4
15630 / 15122	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
15900 / 15360	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	5
15930 / 15387	DEF	AT foram flood	DEF	AT	5
15960 / 15413	DEF	IN Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT	5
16080 / 15521	DEF	AT faunal change (no faunal increase)	DEF	AT	4
16440 / 15850	POS	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	4
16830 / 16216	DEF	AT foram flood	DEF	AT	5
17010 / 16387	DEF	AT faunal change (no faunal increase)	DEF	AT	4
17190 / 16560	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
17730 / 17083	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
17789 / 17141	DEF	AT foram flood	DEF	AT	5
17790 / 17142	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
17880 / 17230	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	5
18000 / 17348	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18550 / 17889	DEF	AT faunal change (no faunal increase)	POS	AT	4
18660 / 17997	DEF	AT local marker foram increase	DEF	AT	5
18720 / 18057	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18960 / 18293	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
19230 / 18558	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
19350 / 18676	DEF	AT local marker planktic foram increase	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

900

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 01-JUL-1998 First Sample Examined: 15510 Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 20796 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 004 **Borehole TVD:** 20016 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174058701 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 15510 - 20796 3283 Water Depth: Public Info Code: Y 10-AUG-2008 **Ecozone Eq MMS:** Y Paleo ID: 003

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
19410 / 18735	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
19560 / 18883	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
19561 / 18884	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
20490 / 19797	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	4
20796 / 20098	DFF	AT last sample examined	DFF	ΑТ	4

GEOLOGIC 02-FEB-2011

901

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 764 Date of Summary: 25-AUG-1998 First Sample Examined: 16000 Lease Number: G08852 Source of Paleo: OPERATOR **Borehole MD:** 20796 Well Name: 004 Paleo Done By: OPERATOR **Borehole TVD:** 20016 **API Well Number:** 608174058701 Drilling Operator: VASTAR RESOURCES INC. **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 16000 - 20500 3283 Water Depth: Public Info Code: Y 10-AUG-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 16000=assemblage A, 16900=assemblage B, 20500=Reticulofenestra pseudoumbilica var G

MD / TVD	Paleo Top Description	<u>Ecozone</u>
16000 / 15449	DEF AT first sample examined	DEF AT
16001 / 15450	DEF IN local marker floral increase	DEF AT
16900 / 16283	DEF AT local marker floral increase	DEF AT
18480 / 17820	DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF AT
18960 / 18293	DEF AT Upper Miocene (Tortonian) Discoaster bollii	DEF AT
20500 / 19807	DEF AT last sample examined	DEF AT

GEOLOGIC

902

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 765 Date of Summary: 18-JUN-2000 First Sample Examined: 13600 Lease Number: G12166 Source of Paleo: OPERATOR **Borehole MD:** 21705 Well Name: Pl002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18149 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174088200 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 13600 - 21700 3544 Water Depth: Public Info Code: Y 21-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Princess Prospect

MD / TVD		Paleo Top Description		ļ	<u>Ecozone</u>
13600 / 12867	DEF	AT first sample examined	POS	AT	4
13630 / 12890	DEF	AT	DEF	AT	4
13660 / 12913	DEF	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	4
14109 / 13250	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
14110 / 13251	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	4
15610 / 14235	DEF	AT reworked material	POS	ΑT	4
15730 / 14313	DEF	AT	DEF	ΑT	4
15910 / 14430	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
16240 / 14643	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	4
17500 / 15437	DEF	AT local marker foram increase	DEF	ΑT	4
17680 / 15551	DEF	AT	DEF	IN	3
17890 / 15685	DEF	AT	DEF	ΑT	4
17980 / 15742	DEF	AT	DEF	IN	3
18160 / 15857	DEF	AT	DEF	ΑT	4
18910 / 16347	DEF	AT local marker planktic foram increase	DEF	ΑT	4
19450 / 16703	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
21400 / 17950	DEF	AT local marker planktic foram increase	DEF	ΑT	4
21700 / 18146	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC

903

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 765 Date of Summary: 01-OCT-2000 First Sample Examined: 22370 Lease Number: G12166 Source of Paleo: OPERATOR 27156 **Borehole MD:** Well Name: Pl002 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 20895 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174088203 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 22370 - 27120 3544 Water Depth: Public Info Code: Y 05-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Princess Prospect

MD / TVD		Paleo Top Description			<b>Ecozone</b>
22370 / 18316	DEF	AT first sample examined	POS	ΑT	4
22470 / 18378	DEF	AT sand	POS	ΑT	4
22620 / 18466	DEF	AT gray shale	POS	ΑT	4
22680 / 18500	DEF	AT	DEF	ΑT	4
23220 / 18776	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	ΑT	4
23520 / 18921	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
25140 / 19718	POS	AT reworked material	POS	ΑT	4
25170 / 19733	DEF	AT gray shale	POS	ΑT	4
25260 / 19781	DEF	AT	DEF	ΑT	4
25620 / 19977	DEF	AT faunal change (no faunal increase)	POS	ΑT	4
25650 / 19994	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	4
25830 / 20094	DEF	IN Upper Miocene (Tortonian) Discorbis 12	POS	ΑT	4
25860 / 20111	DEF	AT	DEF	ΑT	4
27120 / 20872	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 904

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 765 22376 Date of Summary: 01-MAY-2001 First Sample Examined: Lease Number: G12166 Source of Paleo: OPERATOR 27156 **Borehole MD:** Well Name: Pl002 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 20895 **API Well Number:** 608174088203 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 22376 - 27120 3544 Water Depth: Public Info Code: Y 05-OCT-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Princess Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

AT
- AT
AT
- AT
- AT
- AT
- AT
- AT
AT
AT
F F

GEOLOGIC 02-FEB-2011 PAGE: 905

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 772 Date of Summary: 01-APR-1999 8140 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G16647 **Borehole MD:** 14445 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 14442 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174082300 **Rkb Elevation:** 76 Paleo Report Num: 1 of 1 **Sample Range:** 8140 - 14230 5491 Water Depth: Public Info Code: Y 26-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Ec	cozone
7915 / 7913	DEF	AT first sample examined	POS	AT	5
8140 / 8138	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
8200 / 8198	DEF	AT faunal change (no faunal increase)	DEF	AT	6
8650 / 8647	DEF	AT faunal change (no faunal increase)	DEF	AT	5
8830 / 8827	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT	5
9100 / 9097	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	5
9250 / 9247	DEF	AT faunal change (no faunal increase)	DEF	AT	6
9400 / 9397	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9700 / 9697	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	5
9760 / 9757	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT	5
9940 / 9937	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	6
10210 / 10207	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	6
10240 / 10237	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	6
10480 / 10477	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	6
10630 / 10627	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11350 / 11347	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11530 / 11527	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	4
11770 / 11767	DEF	AT faunal change (no faunal increase)	DEF	AT	5
11860 / 11857	DEF	AT faunal change (no faunal increase)	DEF	AT	6
12040 / 12037	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12220 / 12217	DEF	AT faunal change (no faunal increase)	DEF	AT	5
12310 / 12307	DEF	AT faunal change (no faunal increase)	DEF	AT	5

GEOLOGIC

906

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 772 Date of Summary: 01-APR-1999 First Sample Examined: 8140 Source of Paleo: OPERATOR Lease Number: G16647 **Borehole MD:** 14445 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 14442 Drilling Operator: CHEVRON USA INC **API Well Number:** 608174082300 **Rkb Elevation:** 76 Paleo Report Num: 1 of 1 **Sample Range:** 8140 - 14230 5491 Water Depth: Public Info Code: Y 26-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12580 / 12577	DEF	AT faunal change (no faunal increase)	DEF A	Т 4
12610 / 12607	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF A	Т 4
12640 / 12637	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF A	Т 4
13480 / 13477	DEF	AT faunal change (no faunal increase)	DEF A	T 5
13750 / 13746	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF A	Т 5
14230 / 14226	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF A	Т 5
14440 / 14436	DEF	AT last sample examined	DEF A	T 5

GEOLOGIC 02-FEB-2011 PAGE: 907

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 772 Date of Summary: 27-SEP-1999 First Sample Examined: 12290 Source of Paleo: OPERATOR Lease Number: G16647 **Borehole MD:** 18160 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 18155 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174082301 **Rkb Elevation:** 70 Paleo Report Num: 1 of 1 **Sample Range:** 12290 - 18170 5567 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 31-MAR-2009 Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Eco	zone
12290 / 12287	DEF	AT first sample examined	DEF	AT	5
12590 / 12586	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5
13700 / 13696	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT	5
14450 / 14446	DEF	AT faunal change (no faunal increase)	DEF	AT	4
14560 / 14556	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	4
14800 / 14796	DEF	AT faunal change (no faunal increase)	DEF	AT	5
15110 / 15106	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	5
15230 / 15226	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	5
15470 / 15466	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	5
15530 / 15526	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
15650 / 15646	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	4
16280 / 16275	DEF	AT faunal change (no faunal increase)	DEF	AT	5
16400 / 16395	DEF	AT faunal change (no faunal increase)	DEF	AT	4
16520 / 16515	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	AT	4
16640 / 16635	DEF	IN Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT	4
16700 / 16695	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
16730 / 16725	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
17270 / 17265	DEF	AT faunal change (no faunal increase)	DEF	AT	5
17450 / 17445	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18170 /	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC

908

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 773 Date of Summary: 11-JUL-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G19996 **Borehole MD:** 15000 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 14334 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608174088700 **Rkb Elevation:** 63 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 5595 Water Depth: Public Info Code: Y 04-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9600 / 9598	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT
9601 / 9599	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
10260 / 10230	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
10320 / 10285	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10440 / 10392	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10500 / 10445	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
10740 / 10650	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
10800 / 10701	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
12120 / 11826	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT
13176 / 12724	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
14026 / 13455	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT

GEOLOGIC

909

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 773 Date of Summary: 07-AUG-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G19996 **Borehole MD:** 13352 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 13325 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608174088701 **Rkb Elevation:** 63 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 5595 Water Depth: Public Info Code: Y 03-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
10060 / 10052	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10180 / 10170	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10240 / 10230	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10360 / 10349	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10420 / 10409	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
10480 / 10469	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11920 / 11898	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
12250 / 12228	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
12400 / 12377	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12940 / 12916	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
13180 / 13154	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 910

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 773 8650 Date of Summary: 29-MAR-2000 First Sample Examined: Lease Number: G19996 Source of Paleo: OPERATOR 15625 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 14665 **API Well Number:** 608174086400 **Drilling Operator:** MARINER ENERGY INC **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 8650 - 15550 5610 Water Depth: Public Info Code: Y 12-JAN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, 12880=base of Discoaster asymmetricus

MD / TVD		Paleo Top Description			<u>Ecozone</u>
8650 / 8649	DEF	AT first sample examined	DEF	- A1	Г 4
8740 / 8739	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	- A1	Г 4
9700 / 9693	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	- A1	Г 4
9790 / 9781	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	- A1	Γ 4
9820 / 9811	DEF	AT	DEF	- A1	5
9850 / 9840	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	- A1	5
10450 / 10398	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	- A1	5
10480 / 10424	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	- A1	5
10510 / 10450	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	- A1	5
10600 / 10529	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	- A1	5
10601 / 10529	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	- A1	5
10660 / 10580	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	- A1	5
10690 / 10606	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	- A1	5
10720 / 10632	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	- A1	5
11110 / 10962	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	- A1	5
11650 / 11407	DEF	AT sample gap top	POS	FA 8	5
11740 / 11481	DEF	AT sample gap bottom	DEF	- A1	5
12490 / 12098	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	- A1	5
12550 / 12148	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	- A1	5
12880 / 12420	DEF	AT local marker floral increase	DEF	- A1	5
13270 / 12741	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	- A1	5
13450 / 12889	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	- A1	5

GEOLOGIC

911

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 773 Date of Summary: 29-MAR-2000 First Sample Examined: 8650 Source of Paleo: OPERATOR Lease Number: G19996 **Borehole MD:** 15625 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 14665 **Drilling Operator: MARINER ENERGY INC API Well Number:** 608174086400 **Rkb Elevation:** 78 Paleo Report Num: 1 of 1 **Sample Range:** 8650 - 15550 5610 Water Depth: Public Info Code: Y 12-JAN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u> </u>	cozone
13510 / 12938	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT	5
14080 / 13398	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5
14800 / 13973	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	5
15520 / 14572	DEF	AT last sample examined	DEF	ΑT	5

**GEOLOGIC** 02-FEB-2011 912

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 776 Date of Summary: 31-JUL-2000 First Sample Examined: 9990 Lease Number: G09866 Source of Paleo: OPERATOR 26060 **Borehole MD:**

> Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 26046

**API Well Number: 608174088400 Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 46 Paleo Report Num: 1 of 1 Sample Range: 9990 - 26060 5636 Water Depth:

Public Info Code: Y 22-AUG-2010 **Ecozone Eq MMS:** Y

> Remark: Thunder Horse North Prospect, company-integrated foram and nanno report, 9991=mixed nannofossil assemblage including Early to Late Miocene and very rare Oligocene nannofossils, 13800=mixed nannofossil assemblage from late and mid-Miocene, 13830=mixed nannofossil assemblage, mostly Early Middle-Late Early Miocene, foram assemblage is predominantly lower Late Miocene in age, with common reworking of older Miocene material, 13920 TO 14070=mixed foram assemblage with fossils from Early to Late Miocene in age, 14130 to 15330=poor nannofossil recovery with assemblages as above which appear to be out-of-place, 21630=increase in 'mid-size' Reticulofenestra spp, 22260=atypical Sphenolithus dissimilis

MD / TVD		Paleo Top Description		Eco	zone
9990 / 9989	DEF	AT first sample examined	DEF	AT	
9991 / 9990	POS	AT reworked material	DEF	AT	
10560 / 10559	DEF	AT salt	DEF	AT	
13799 / 13791	DEF	AT base of salt	DEF	AT	
13800 / 13792	POS	AT reworked material	DEF	AT	
13830 / 13822	POS	AT reworked material	DEF	AT	6
13920 / 13912	POS	AT reworked material	DEF	AT	6
15330 / 15322	POS	AT Upper Miocene (Tortonian) Uvigerina 3	POS	AT	5
15360 / 15352	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	POS	AT	5
15540 / 15532	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	POS	AT	5
15660 / 15652	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	POS	AT	5
15690 / 15682	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	POS	AT	5
15750 / 15742	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	POS	AT	5
15780 / 15772	POS	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	5
15900 / 15892	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	POS	AT	5
15901 / 15893	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	POS	AT	5
16200 / 16192	DEF	AT faunal change (no faunal increase)	POS	AT	6
16530 / 16522	DEF	AT faunal change (no faunal increase)	DEF	AT	6
16770 / 16762	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6

**GEOLOGIC** 02-FEB-2011 PAGE: 913

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 776 Date of Summary: 31-JUL-2000 First Sample Examined: 9990 Source of Paleo: OPERATOR Lease Number: G09866 **Borehole MD:** 26060 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 26046

**Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174088400 **Rkb Elevation:** 46 5636 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 9990 - 26060

Public Info Code: Y 22-AUG-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
17040 / 17032	DEF	AT faunal change (no faunal increase)	POS	AT	6
18360 / 18351	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	POS	AT	6
18570 / 18561	DEF	AT faunal change (no faunal increase)	DEF	AT	6
19590 / 19581	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	6
19980 / 19971	DEF	AT faunal change (no faunal increase)	POS	AT	6
20110 / 20101	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	POS	ΑT	6
20250 / 20241	DEF	AT faunal change (no faunal increase)	DEF	ΑT	6
20430 / 20421	DEF	AT local marker planktic foram increase	DEF	ΑT	6
20520 / 20511	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	6
20759 / 20749	DEF	AT local marker planktic foram increase	DEF	AT	6
20760 / 20750	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	6
21630 / 21620	DEF	AT local marker floral increase	DEF	AT	6
21750 / 21740	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	6
21780 / 21770	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	ΑT	6
22110 / 22100	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	ΑT	6
22260 / 22249	DEF	AT local marker floral increase	DEF	ΑT	6
22470 / 22459	DEF	AT faunal change (no faunal increase)	POS	ΑT	6
23219 / 23208	DEF	AT foram flood	DEF	ΑT	6
23220 / 23209	POS	IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	ΑT	6
25230 / 25218	DEF	AT local marker planktic foram increase	DEF	AT	6
26060 / 26047	DEF	AT last sample examined	DEF	AT	6

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

914

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 776 15030 Date of Summary: 01-DEC-2000 First Sample Examined: Lease Number: G09866 Source of Paleo: OPERATOR 23360 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 22046 **API Well Number:** 608174088403 **Drilling Operator:** BP EXPLORATION & OIL INC **Rkb Elevation:** 46 **Sample Range:** 15030 - 23340 Paleo Report Num: 1 of 1 Water Depth: 5636 Public Info Code: Y 11-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Thunder Horse Prospect, company-integrated foram and nanno report, 15030=first sample examined for nannofossils, 17010=first sample examined for

MD / TVD		Paleo Top Description		<u>E</u>	cozone
15030 / 15022	DEF	AT first sample examined	DEF	AT	
15360 / 15351	DEF	IN Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT	
15510 / 15500	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	ΑT	
15900 / 15882	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT	
15901 / 15883	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	ΑT	
17010 / 16885	DEF	AT	DEF	ΑT	0
17340 / 17153	DEF	AT	DEF	ΑT	4
17370 / 17178	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
17490 / 17278	DEF	AT	DEF	AT	0
18240 / 17888	DEF	AT	DEF	ΑT	4
18690 / 18242	DEF	AT	DEF	ΑT	0
19290 / 18712	DEF	AT	DEF	ΑT	4
19620 / 18975	DEF	AT	DEF	ΑT	0
19860 / 19172	DEF	AT	DEF	ΑT	4
20040 / 19320	DEF	AT	DEF	ΑT	0
20310 / 19545	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	ΑT	4
21690 / 20669	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
21990 / 20913	DEF	AT	DEF	ΑT	0
22380 / 21234	DEF	AT	DEF	ΑT	4
22470 /21308	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	4
23010 / 21756	DEF	AT	DEF	AT	0

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 915

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:MC 776Date of Summary:01-DEC-2000First Sample Examined:15030Lease Number:G09866Source of Paleo:OPERATORBorehole MD:23360

Well Name: 001 Paleo Done By: OPERATOR Borehole TVD: 22046

API Well Number: 608174088403 Drilling Operator: BP EXPLORATION & OIL INC

Paleo Report Num: 1 of 1 Sample Range: 15030 - 23340 Water Depth: 5636

Public Info Code: Y 11-DEC-2010 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
23160 / 21880	DEF AT	DEF AT 4
23340 / 22029	DEF AT last sample examined	DEF AT 4

GEOLOGIC 02-FEB-2011 PAGE: 916

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 778 9050 Date of Summary: 06-MAY-1999 First Sample Examined: Lease Number: G09868 Source of Paleo: OPERATOR **Borehole MD:** 23531 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23521 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174082600 **Rkb Elevation:** 46 **Sample Range:** 9050 - 23531 6050 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 24-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Thunder Horse Prospect, company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>E</u>	cozone
9050 / 9050	DEF	AT first sample examined	DEF	AT	
9051 / 9051	DEF	IN salt	DEF	AT	
11299 / 11293	DEF	AT base of salt	DEF	AT	
11300 / 11294	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	POS	AT	5
11450 / 11443	DEF	AT faunal change (no faunal increase)	DEF	AT	6
11720 / 11713	DEF	AT cement	POS	AT	6
11810 / 11803	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
12380 / 12372	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	ΑT	5
12560 / 12552	DEF	AT faunal change (no faunal increase)	POS	ΑT	5
12770 / 12762	DEF	AT faunal change (no faunal increase)	DEF	AT	6
13670 / 13662	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	ΑT	6
14210 / 14202	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	6
14420 / 14412	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	ΑT	6
14552 / 14544	DEF	AT cement	POS	AT	6
14570 / 14562	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14660 / 14652	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	5
14750 / 14742	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	POS	AT	5
15560 / 15552	DEF	AT local marker foram increase	POS	AT	5
16010 / 16002	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	5
17120 / 17112	DEF	AT Upper Miocene (Tortonian) Discoaster exilis	DEF	AT	5
17480 / 17472	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
17570 / 17562	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	ΑT	5

**GEOLOGIC** 02-FEB-2011

917

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 778 Date of Summary: 06-MAY-1999 First Sample Examined: 9050 Source of Paleo: OPERATOR Lease Number: G09868 **Borehole MD:** 23531 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 23521

**Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174082600 **Rkb Elevation:** 46 6050 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 9050 - 23531

Public Info Code: Y 24-MAY-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	cozone
17990 / 17982	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT	5
18260 / 18252	DEF	AT faunal change (no faunal increase)	POS	AT	6
18350 / 18342	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	POS	AT	6
18440 / 18432	DEF	AT faunal change (no faunal increase)	DEF	AT	6
18710 / 18702	DEF	AT faunal change (no faunal increase)	POS	AT	6
19130 / 19122	DEF	AT faunal change (no faunal increase)	DEF	AT	6
19370 / 19362	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	6
19490 / 19482	DEF	AT faunal change (no faunal increase)	POS	AT	6
19670 / 19662	DEF	AT faunal change (no faunal increase)	DEF	AT	6
19940 / 19932	DEF	AT faunal change (no faunal increase)	POS	AT	6
20090 / 20082	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	POS	ΑT	6
20240 / 20232	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	POS	ΑT	6
20270 / 20262	DEF	AT faunal change (no faunal increase)	DEF	ΑT	6
21590 / 21582	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	6
22040 / 22032	DEF	AT faunal change (no faunal increase)	DEF	ΑT	6
22200 / 22192	DEF	AT faunal change (no faunal increase)	POS	ΑT	6
22210 / 22202	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	POS	ΑT	6
22250 / 22242	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	POS	ΑT	6
22340 / 22331	DEF	AT faunal change (no faunal increase)	POS	ΑT	6
23360 / 23351	POS	AT Lower Miocene (Aquitanian) Discoaster saundersi	POS	ΑT	6
23510 / 23501	POS	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	POS	AT	6
23531 / 23522	DEF	AT last sample examined	POS	AT	6

GEOLOGIC 02-FEB-2011

918

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 778 23510 Date of Summary: 28-JUN-1999 First Sample Examined: Lease Number: G09868 Source of Paleo: OPERATOR 25782 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 25765 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174082601 **Rkb Elevation:** 46 **Sample Range:** 21800 - 25710 6037 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 21-JUL-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Thunder Horse Prospect, calcareous nannofossil report, 21801= in Triquetrorhabdulus carinatus equivalent, 25710=no definite Oligocene encountered

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
21800 / 21792	DEF	AT first sample examined	DEF	AT	
21801 / 21793	DEF	IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	
23510 / 23500	DEF	AT local marker foram increase	POS	AT	5
23660 / 23650	DEF	AT Arenaceous fauna (local marker)	POS	AT	5
23690 / 23680	DEF	AT faunal change (no faunal increase)	DEF	AT	6
24500 / 24490	DEF	AT local marker foram increase	DEF	AT	6
24501 / 24491	DEF	AT local marker floral increase	DEF	AT	6
25310 / 25297	DEF	AT faunal change (no faunal increase)	POS	AT	6
25400 / 25387	DEF	AT local marker foram increase	POS	AT	6
25401 / 25388	DEF	AT local marker floral increase	POS	AT	6
25710 / 25694	DEF	AT last sample examined	POS	AT	6

GEOLOGIC 02-FEB-2011

919

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 807 Date of Summary: 13-AUG-1999 First Sample Examined: 19230 Source of Paleo: OPERATOR Lease Number: G07963 **Borehole MD:** 23400 Well Name: A007 Paleo Done By: THOMAS REILLY **Borehole TVD:** 22804 **Drilling Operator:** SHELL DEEPWATER PRODUCTION INC **API Well Number:** 608174047800 **Rkb Elevation:** 192 Paleo Report Num: 1 of 1 **Sample Range:** 19230 - 23370 2945 Water Depth: Public Info Code: Y 20-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
19230 / 18665	DEF	AT first sample examined	DEF	IN	3
19680 / 19095	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	IN	3
19770 / 19183	DEF	AT local marker foram increase	DEF	AT	4
20070 / 19479	DEF	AT	DEF	IN	3
20310 / 19717	DEF	AT local marker planktic foram increase	DEF	IN	3
20910 / 20317	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	IN	3
21000 / 20407	DEF	AT local marker foram increase	DEF	AT	4
22080 / 21485	DEF	AT local marker planktic foram increase	DEF	AT	4
22290 / 21694	DEF	AT local marker planktic foram increase	DEF	AT	4
22800 / 22203	DEF	AT local marker foram increase	DEF	AT	4
23010 / 22413	DEF	AT local marker foram increase	DEF	AT	4
23370 / 22773	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 920

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 7400 Date of Summary: 01-MAR-2000 First Sample Examined: Lease Number: G18294 Source of Paleo: OPERATOR 13837 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 13823 **API Well Number: 608174086600 Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 7400 - 13890 5395 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7400 / 7400	DEF	AT first sample examined	DEF	AT
7460 / 7460	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
8210 / 8210	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8360 / 8360	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
8810 / 8810	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
8870 / 8870	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
8900 / 8900	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
8930 / 8930	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9020 / 9020	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
9110 / 9110	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9500 / 9500	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
9800 / 9800	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
10370 / 10370	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
10400 / 10400	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
10910 / 10910	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
10970 / 10970	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
11030 / 11030	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
11900 / 11900	DEF	AT local marker floral increase	DEF	AT
12960 / 12959	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
13130 / 13129	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
13370 / 13367	DEF	AT Upper Miocene (Tortonian) Helicosphaera "B"	DEF	AT
13420 / 13417	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT

**GEPALDET** 

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 921

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 7400 Date of Summary: 01-MAR-2000 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G18294 13837 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 13823 **API Well Number:** 608174086600 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 **Sample Range:** 7400 - 13890 Paleo Report Num: 1 of 2 5395 Water Depth: Paleo ID: 002

Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** 

MD/TVD	Paleo Top Description	<u>Ecozone</u>
13460 / 13456	POS AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF AT
13500 / 13496	DEF IN Upper Miocene (Tortonian) Minylitha convallis	DEF AT
13890 /	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 922

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 Date of Summary: 01-APR-2000 First Sample Examined: 7375 Lease Number: G18294 Source of Paleo: OPERATOR **Borehole MD:** 13837 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13823 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174086600 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 7375 - 13838 5395 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Ec	ozone
7375 / 7375	DEF	AT first sample examined	DEF	AT	
7609 / 7609	DEF	AT local marker foram increase	DEF	AT	4
7610 / 7610	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	4
7970 / 7970	DEF	AT reworked material	DEF	AT	4
8090 / 8090	DEF	AT local marker foram increase	DEF	AT	4
8210 / 8210	POS	AT local marker foram increase	DEF	AT	4
8211 / 8211	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
8390 / 8390	DEF	AT	DEF	AT	5
8479 / 8479	POS	AT condensed section	DEF	AT	6
8480 / 8480	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	6
8570 / 8570	DEF	AT	DEF	AT	5
8658 / 8658	DEF	AT cement	DEF	IN	5
8690 / 8690	DEF	AT	DEF	AT	4
8809 / 8809	DEF	AT condensed section	DEF	AT	6
8810 / 8810	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	6
8840 / 8840	DEF	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	6
8900 / 8900	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	6
8928 / 8928	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	6
8929 / 8929	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	6
8930 / 8930	DEF	AT Upper Pliocene (Piacenzian) Cibicides grossperforatus	DEF	AT	6
8931 / 8931	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	6
9050 / 9050	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	6

**GEOLOGIC** 02-FEB-2011 PAGE: 923

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 Date of Summary: 01-APR-2000 First Sample Examined: 7375 Source of Paleo: OPERATOR Lease Number: G18294 **Borehole MD:** 13837 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13823 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174086600 **Rkb Elevation:** 78 5395

Paleo Report Num: 2 of 2 **Sample Range:** 7375 - 13838 Water Depth:

Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
9140 / 9140	DEF	AT transported shelf fauna	DEF	AT	6
9300 / 9300	DEF	AT	DEF	AT	5
9380 / 9380	DEF	AT	DEF	AT	4
9470 / 9470	DEF	AT local marker foram increase	DEF	AT	4
9500 / 9500	DEF	AT local marker foram increase	DEF	AT	5
9530 / 9530	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
9560 / 9560	DEF	AT sample gap top	DEF	AT	5
9703 / 9703	DEF	AT sample gap bottom	DEF	AT	5
9704 / 9704	DEF	AT	DEF	AT	4
9800 / 9800	DEF	AT local marker foram increase	DEF	AT	6
9890 / 9890	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	6
9920 / 9920	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
10010 / 10010	DEF	AT	DEF	AT	6
10310 / 10310	DEF	AT	DEF	AT	6
10400 / 10400	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	6
10430 / 10430	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
10460 / 10460	DEF	AT local marker planktic foram increase	DEF	AT	5
10550 / 10550	DEF	AT	DEF	AT	5
10610 / 10610	DEF	AT local marker foram decrease	POS	AT	4
10910 / 10910	DEF	AT local marker foram increase	DEF	AT	6
11030 /11030	DEF	AT transported shelf fauna	DEF	AT	6
11050 / 11050	DEF	AT	DEF	AT	5
11179 / 11179	POS	AT condensed section	DEF	AT	6
11180 / 11180	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 924

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 Date of Summary: 01-APR-2000 First Sample Examined: 7375 Lease Number: G18294 Source of Paleo: OPERATOR **Borehole MD:** 13837 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13823 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174086600 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 7375 - 13838 5395 Water Depth:

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<u>Ecozone</u>
11270 / 11270	DEF	AT local marker foram decrease	DEF	AT	4
11450 / 11450	POS	IN Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT	4
11810 / 11810	POS	AT local marker foram increase	DEF	AT	5
11960 / 11960	DEF	AT local marker planktic foram increase	DEF	AT	5
11990 / 11990	DEF	AT sample gap top	DEF	AT	5
12079 / 12079	DEF	AT sample gap bottom	DEF	AT	5
12080 / 12080	DEF	AT	DEF	AT	5
12470 / 12470	DEF	AT local marker foram increase	DEF	AT	6
12530 / 12530	DEF	AT	DEF	AT	5
12740 / 12740	DEF	AT transported shelf fauna	DEF	AT	4
13000 / 12999	POS	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	AT	4
13030 / 13029	DEF	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	4
13070 / 13069	DEF	AT local marker foram increase	DEF	ΑT	5
13130 / 13129	DEF	AT	DEF	AT	4
13350 / 13347	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	4
13370 / 13367	DEF	AT	DEF	AT	6
13430 / 13427	DEF	AT	DEF	AT	5
13630 / 13623	DEF	AT transported shelf fauna	DEF	AT	4
13810 / 13797	DEF	AT	DEF	AT	5
13830 / 13816	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

925

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 Date of Summary: 01-MAR-2000 First Sample Examined: 13780 Lease Number: G18294 Source of Paleo: OPERATOR **Borehole MD:** 17998 Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 17635 **Drilling Operator:** VASTAR RESOURCES INC. **API Well Number:** 608174086601 **Rkb Elevation:** 78 Paleo Report Num: 1 of 2 **Sample Range:** 13780 - 17998 5395 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
13780 / 13769	DEF	AT first sample examined	DEF	AT
13800 / 13788	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
13900 / 13884	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
14240 / 14201	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
14330 / 14284	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	AT
15110 / 14994	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
15620 / 15455	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16580 / 16327	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
17420 / 17099	DEF	AT Upper Miocene (Tortonian) Discoaster exilis	DEF	AT
17660 / 17321	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
17998 / 17635	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 926

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 13780 Date of Summary: 01-MAY-2000 First Sample Examined: Lease Number: G18294 Source of Paleo: OPERATOR 17998 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 17635 **API Well Number:** 608174086601 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 13780 - 17998 5395 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: 16910=Uvigerina semicostata acme, 17150=increase in Saccammina sp

<u>MD / TVD</u>		Paleo Top Description		<u>E</u>	cozone
13780 / 13769	DEF	AT first sample examined	DEF	AT	5
13781 / 13770	DEF	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
13820 / 13808	DEF	AT Upper Miocene (Tortonian) Cibicides trincherasensis	DEF	AT	5
13880 / 13865	DEF	AT	DEF	AT	6
13960 / 13941	DEF	AT local marker foram increase	DEF	AT	6
14000 / 13979	DEF	AT	DEF	AT	5
14060 / 14035	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
14090 / 14063	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
14150 / 14119	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	5
14270 / 14229	POS	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
14330 / 14284	DEF	AT local marker foram increase	DEF	AT	5
14390 / 14339	DEF	AT	DEF	AT	0
14600 / 14530	DEF	AT	DEF	AT	4
14630 / 14557	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	4
14690 / 14612	DEF	AT	DEF	AT	5
14750 / 14667	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
14810 / 14721	DEF	AT	DEF	AT	4
15110 / 14994	DEF	AT local marker foram increase	DEF	AT	4
16040 / 15838	DEF	AT	DEF	AT	5
16130 / 15919	DEF	AT	DEF	AT	4
16250 / 16028	DEF	AT local marker foram increase	DEF	AT	4
16310 / 16082	DEF	AT	DEF	AT	5

**GEOLOGIC** 02-FEB-2011

927

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 815 Date of Summary: 01-MAY-2000 First Sample Examined: 13780 Source of Paleo: OPERATOR Lease Number: G18294 **Borehole MD:** 17998 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 17635 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174086601 **Rkb Elevation:** 78 Paleo Report Num: 2 of 2 **Sample Range:** 13780 - 17998 5395 Water Depth:

Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
16369 / 16136	DEF	AT local marker foram increase	DEF	AT	5
16370 / 16136	POS	AT Upper Miocene (Tortonian) Cibicides inflata	DEF	AT	5
16460 / 16218	DEF	AT local marker benthic foram increase	DEF	AT	5
16550 / 16300	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
16610 / 16354	DEF	AT Bathysiphon fauna	DEF	AT	5
16730 / 16464	DEF	AT	DEF	AT	4
16790 / 16519	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	4
16910 / 16629	DEF	AT local marker foram increase	DEF	AT	5
16970 / 16684	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
17060 / 16767	DEF	AT local marker foram increase	DEF	AT	5
17090 / 16795	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
17150 / 16850	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
17210 / 16905	DEF	AT	DEF	AT	4
17390 / 17072	DEF	AT local marker foram increase	DEF	AT	5
17998 / 17635	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 928

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 822 Date of Summary: 07-JAN-2001 9950 First Sample Examined: Lease Number: G14658 Source of Paleo: OPERATOR 29100 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 29060 **API Well Number:** 608174086700 **Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation:** 92 Paleo Report Num: 1 of 1 **Sample Range:** 9950 - 29090 6327 Water Depth: Public Info Code: Y 30-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, 16370=Gyroidina scalata, 28430=Lower Oligocene Sphenolithus tribulosus

MD / TVD		Paleo Top Description		<u>E</u> c	cozone
9950 / 9950	DEF	AT first sample examined	DEF	AT	5
10430 / 10430	DEF	AT	DEF	AT	5
10700 / 10700	DEF	AT	DEF	AT	6
10760 / 10760	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
10820 / 10820	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT	6
10970 / 10970	DEF	AT	DEF	AT	6
11090 / 11090	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
11150 / 11150	DEF	AT	POS	AT	6
11450 / 11450	DEF	AT	DEF	AT	6
11510 / 11510	POS	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
11539 / 11539	POS	AT unconformity	DEF	AT	6
11540 / 11540	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
11630 / 11630	DEF	AT	POS	AT	6
12080 / 12079	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
12980 / 12979	DEF	AT	DEF	AT	7
13190 / 13189	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	POS	AT	6
13560 / 13558	DEF	AT cement	POS	ΑT	6
13760 / 13758	DEF	AT	DEF	AT	5
14000 / 13998	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	5
14150 / 14148	DEF	AT	DEF	AT	6
14840 / 14838	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	5
15020 / 15018	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 929

Water Depth:

Paleo ID:

6327

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 822 Date of Summary: 07-JAN-2001 First Sample Examined: 9950

Lease Number: G14658 Source of Paleo: OPERATOR Borehole MD: 29100

Well Name: 001 Paleo Done By: OPERATOR Borehole TVD: 29060

ARI Well Number: 608174086700 Prilling Operator: RR EXPLORATION & RROUGHOUND Right Flowerien: 03

API Well Number: 608174086700 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 92

Paleo Report Num: 1 of 1 Sample Range: 9950 - 29090

Public Info Code: Y 30-DEC-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
15410 / 15407 D	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	5
15890 / 15887 D	DEF	AT	POS	AT	5
16160 / 16157 D	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	POS	AT	5
16190 / 16187 D	DEF	AT	DEF	AT	5
16310 / 16307 D	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
16370 / 16367 D	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
17510 / 17506 P	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
17630 / 17626 D	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	5
18140 / 18134 D	DEF	AT faunal change (no faunal increase)	DEF	AT	5
18320 / 18314 D	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT	5
18440 / 18433 D	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	POS	AT	5
19130 / 19121 D	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	POS	AT	5
19160 / 19150 D	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	POS	AT	5
19520 / 19508 D	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	POS	AT	5
19550 / 19538 D	DEF	AT	DEF	AT	5
20450 / 20432 D	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
20510 / 20492 D	DEF	AT	DEF	AT	5
21040 /21020 D	DEF	AT	DEF	AT	6
21190 /21169 D	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	6
21210 /21189 D	DEF	AT	DEF	AT	5
22050 / 22028 D	DEF	AT	DEF	AT	6
22110 / 22088 D	DEF	AT	DEF	AT	5
22300 / 22278 D	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT	5
23460 / 23437 D	DEF	AT	DEF	AT	6

GEOLOGIC

930

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC822Date of Summary: 07-JAN-2001First Sample Examined: 9950Lease Number: G14658Source of Paleo: OPERATORBorehole MD: 29100Well Name: 001Paleo Done By: OPERATORBorehole TVD: 29060

Well Name: 001 Paleo Done By: OPERATOR Borehole TVD: 29060

API Well Number: 608174086700 Drilling Operator: BP EXPLORATION & PRODUCTION INC Rkb Elevation: 92
Paleo Report Num: 1 of 1 Sample Range: 9950 - 29090 Water Depth: 6327

Public Info Code: Y 30-DEC-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Eco	zone
26820 / 26794	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT	6
27330 / 27302	DEF	AT	POS	AT	5
27880 / 27848	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	POS	AT	5
28170 / 28136	DEF	AT Lower Oligocene (Rupelian) Discoaster nodifer	POS	AT	5
28280 / 28246	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	POS	AT	5
28380 / 28345	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	POS	AT	5
28430 / 28395	POS	IN Lower Oligocene (Rupelian) Sphenolithus predistentus	POS	AT	5
28550 / 28514	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	POS	AT	5
28580 / 28543	DEF	AT Middle Eocene (Bartonian) Micrantholithus procerus	POS	AT	5
28610 / 28573	DEF	AT Middle Eocene (Lutetian) Sphenolithus spiniger	POS	AT	5
29090 / 29049	DEF	AT last sample examined	POS	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 931

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 849 Date of Summary: 10-APR-2002 First Sample Examined: 6258 16227 Lease Number: G21188 Source of Paleo: OPERATOR **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15500 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608174097900 **Rkb Elevation:** 60 Paleo Report Num: 1 of 2 **Sample Range:** 6258 - 16227 3599 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		Ecoz	zone
6258 / 6258	DEF	AT first sample examined	DEF	AT	5
7260 / 7247	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
8040 / 7955	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8850 / 8621	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
9150 / 8865	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
10140 / 9669	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
10740 / 10162	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10980 / 10365	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
13680 / 12953	POS	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
14430 / 13703	POS	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
16227 / 15500	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

932

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 849 Date of Summary: 10-APR-2002 6258 First Sample Examined: Lease Number: G21188 Source of Paleo: OPERATOR **Borehole MD:** 16227 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15500 **Drilling Operator: SAMEDAN OIL CORPORATION API Well Number:** 608174097900 **Rkb Elevation:** 60 Paleo Report Num: 2 of 2 **Sample Range:** 6258 - 16227 3599 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD/TVD		Paleo Top Description		<b>Ecozone</b>
6258 / 6258	DEF	AT first sample examined	DEF	AT
6990 / 6985	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
7650 / 7610	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8850 / 8621	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
9030 / 8767	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
10110 / 9645	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10680 / 10112	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10740 / 10162	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10860 / 10263	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
10920 / 10314	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
13350 / 12623	DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
14760 / 14033	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT
15990 / 15263	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
16227 / 15500	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 933

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 12-OCT-2003 8950 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 17955 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 17955 **API Well Number:** 608174101900 **Drilling Operator:** CHEVRON USA INC **Rkb Elevation:** 75 **Sample Range:** 8950 - 17955 5657 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
8950 / 8950	DEF	AT first sample examined	DEF	AT	5
8951 / 8951	DEF	IN Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
9070 / 9070	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
9100 / 9100	DEF	AT local marker foram increase	DEF	AT	5
9310 / 9310	DEF	AT pyrite	DEF	AT	5
9340 / 9340	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	5
9370 / 9370	DEF	AT foram flood	DEF	AT	5
9430 / 9430	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
9580 / 9580	DEF	AT local marker foram decrease	DEF	AT	5
9760 / 9760	DEF	AT drilling material	DEF	IN	4
9880 / 9880	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	4
9910 / 9910	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
9940 / 9940	DEF	AT foram flood	DEF	IN	5
10030 / 10030	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	IN	5
10060 / 10060	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
10120 / 10120	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
10180 / 10180	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
10240 / 10240	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
10270 / 10270	DEF	AT local marker foram decrease	DEF	IN	5
10300 / 10300	DEF	AT local marker benthic foram increase	DEF	IN	5
10360 / 10360	DEF	AT local marker foram decrease	DEF	IN	5
10390 / 10390	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 934

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 12-OCT-2003 8950 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 17955 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 17955 Drilling Operator: CHEVRON USA INC **API Well Number:** 608174101900 **Rkb Elevation:** 75 **Sample Range:** 8950 - 17955 Paleo Report Num: 1 of 2 5657 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
10480 / 10480	DEF	AT pyrite	DEF	AT	5
10570 / 10570	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
10720 / 10720	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
10750 / 10750	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
10840 / 10840	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
10869 / 10869	DEF	AT pyrite	DEF	AT	5
10870 / 10870	POS	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	5
10900 / 10900	DEF	AT drilling material	DEF	AT	5
10960 / 10960	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
10990 / 10990	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	5
11020 / 11020	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	5
11080 / 11080	DEF	AT pyrite	DEF	AT	5
11110 / 11110	DEF	AT drilling material	DEF	AT	5
11170 / 11170	DEF	AT local marker benthic foram increase	DEF	AT	5
11200 / 11200	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	5
11230 / 11230	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
11259 / 11259	DEF	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	5
11260 / 11260	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	5
11290 / 11290	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
11320 / 11320	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
11410 / 11410	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
11440 / 11440	DEF	AT local marker foram decrease	DEF	AT	5
11470 / 11470	DEF	AT salt	DEF	AT	5
17929 / 17929	DEF	AT base of salt	DEF	ΑT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 935

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:MC860Date of Summary:12-OCT-2003First Sample Examined:8950Lease Number:G18301Source of Paleo:OPERATORBorehole MD:17955

Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Borehole TVD: 17955

API Well Number: 608174101900 Drilling Operator: CHEVRON USA INC

Paleo Report Num: 1 of 2 Sample Range: 8950 - 17955 Water Depth: 5657

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: Y

MD/TVD	Paleo Top Description	<u>Ecozone</u>
17930 / 17930	DEF IN Middle Miocene (Langhian) Globigerinatella insueta	DEF AT 5
17955 / 17955	DEF AT last sample examined	DEF AT 5

GEOLOGIC 02-FEB-2011 PAGE: 936

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 14-OCT-2003 8950 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 17955 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17955 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174101900 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 8950 - 11470 5657 Water Depth: Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: N Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8950 / 8950	DEF	AT first sample examined	DEF	AT
8951 / 8951	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "A"	DEF	AT
8980 / 8980	DEF	AT local marker floral decrease	DEF	AT
9100 / 9100	DEF	AT floral flood	DEF	AT
9190 / 9190	DEF	AT local marker floral decrease	DEF	AT
9280 / 9280	DEF	AT local marker floral increase	DEF	AT
9310 / 9310	DEF	AT floral flood	DEF	AT
9340 / 9340	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
9370 / 9370	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
9430 / 9430	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
9460 / 9460	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
9520 / 9520	DEF	AT local marker floral decrease	DEF	AT
9730 / 9730	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9760 / 9760	DEF	AT local marker floral decrease	DEF	AT
9820 / 9820	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
9910 / 9910	DEF	AT floral flood	DEF	AT
10000 / 10000	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
10030 / 10030	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri (increase)	DEF	AT
10060 / 10060	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
10120 / 10120	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
10300 / 10300	DEF	AT local marker floral decrease	DEF	AT
10480 / 10480	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT

GEOLOGIC 02-FEB-2011

937

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 14-OCT-2003 8950 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G18301 17955 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 17955 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174101900 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 8950 - 11470 5657 Water Depth:

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: N

	MD / TVD		Paleo Top Description		<b>Ecozone</b>
1	10720 / 10720	DEF	AT local marker floral decrease	DEF	AT
1	10810 / 10810	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
1	10870 / 10870	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
1	10930 / 10930	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
1	10990 / 10990	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
1	11020 /11020	DEF	AT local marker floral decrease	DEF	AT
1	11050 /11050	DEF	AT floral flood	DEF	AT
1	11110 /11110	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
1	11140 /11140	POS	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
1	11200 /11200	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
1	11230 /11230	DEF	AT local marker floral decrease	DEF	AT
1	11260 /11260	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
1	11290 /11290	DEF	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
1	11320 / 11320	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
1	11380 /11380	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
1	11410 /11410	DEF	AT out-of-place section	DEF	AT
1	11470 / 11470	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 938

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 17930 Date of Summary: 18-NOV-2003 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 19157 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19139 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174101901 **Rkb Elevation:** 75 Paleo Report Num: 1 of 2 **Sample Range:** 17930 - 19157 5657 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
17930 / 17922	DEF	AT first sample examined	POS	AT	5
17931 / 17923	DEF	IN salt	POS	AT	5
18139 / 18129	DEF	AT base of salt	DEF	AT	5
18140 / 18130	DEF	IN Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	5
18200 / 18190	DEF	AT local marker planktic foram increase	DEF	AT	5
18379 / 18368	DEF	AT turbid water facies	POS	AT	5
18380 / 18369	DEF	AT local white Arenacous fauna	POS	AT	5
18410 / 18399	DEF	AT	DEF	AT	5
18440 / 18428	DEF	AT local marker foram decrease	DEF	AT	5
18470 / 18458	DEF	AT turbid water facies	POS	AT	5
18530 / 18518	DEF	AT	DEF	AT	5
18550 / 18538	DEF	AT turbid water facies	POS	AT	5
18590 / 18577	DEF	AT	DEF	AT	5
18650 / 18637	DEF	AT foram flood	DEF	AT	5
18670 / 18657	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
18710 / 18696	DEF	AT Bathysiphon fauna	DEF	AT	5
18740 / 18726	DEF	AT turbid water facies	POS	ΑT	5
18770 / 18756	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
18800 / 18786	DEF	AT pyrite	DEF	AT	5
18830 / 18815	DEF	AT local marker foram increase	DEF	AT	5
18950 / 18934	DEF	AT local marker foram decrease	DEF	AT	5
18960 / 18944	DEF	AT local marker planktic foram increase	DEF	AT	5

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 939

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 860	Date of Summary: 18-NOV-2003	First Sample Examined:	17930
Lease Number: G18301	Source of Paleo: OPERATOR	Borehole MD:	19157
Well Name: 001	Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.	Borehole TVD:	19139
API Well Number: 608174101901	Drilling Operator: CHEVRON USA INC	Rkb Elevation:	75
Paleo Report Num: 1 of 2	Sample Range: 17930 - 19157	Water Depth:	5657
Public Info Code: Y 14-JUN-2008	Ecozone Eg MMS: Y	Paleo ID:	001

MD/IVD	Paleo Top Description	<u>Ecozone</u>
19010 / 18994	DEF AT local marker foram decrease	DEF IN 4
19070 / 19053	DEF AT pyrite	DEF IN 4
19100 / 19083	DEF AT last sample examined	DEF IN 4

GEOLOGIC 02-FEB-2011

940

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 03-DEC-2003 18140 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 19157 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 19139 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174101901 **Rkb Elevation:** 75 Paleo Report Num: 2 of 2 **Sample Range:** 18140 - 19157 5657 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
18140 / 18130	DEF	AT first sample examined	DEF	AT
18141 / 18131	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
18200 / 18190	DEF	AT local marker floral decrease	DEF	AT
18320 / 18309	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
18440 / 18428	DEF	AT local marker floral decrease	DEF	AT
18650 / 18637	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
18680 / 18667	DEF	AT local marker floral decrease	DEF	AT
18890 / 18875	DEF	AT floral flood	DEF	AT
18920 / 18905	DEF	AT local marker floral decrease	DEF	AT
18980 / 18964	POS	AT local marker floral increase	DEF	AT
19010 / 18994	POS	AT local marker floral decrease	DEF	AT
19137 / 19119	POS	AT local marker floral increase	DEF	AT
19157 / 19139	DEF	AT last sample examined	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

941

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 16560 Date of Summary: 01-AUG-2007 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 26979 **Borehole MD:** Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112800 **Rkb Elevation:** 92 Paleo Report Num: 1 of 4 **Sample Range:** 16560 - 27070 Water Depth: 5667 Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Big North Prospect, calcareous nannofossil report, paleo done by JMC of subsalt section, nannospecies abundance and diversity charts available, see

report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
16560 / 16553	DEF	AT first sample examined	DEF	AT
16561 / 16554	DEF	IN out-of-place section	DEF	AT
16790 / 16781	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
16880 / 16869	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
17380 / 17363	DEF	AT floral flood	DEF	AT
19610 / 19491	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
21020 / 20602	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
21640 / 21087	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
22360 / 21642	DEF	AT floral flood	DEF	AT
22510 / 21760	DEF	AT floral flood	DEF	AT
24970 / 23697	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
26050 / 24543	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
27070 /	DEF	AT last sample examined	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 942

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 9320 Date of Summary: 08-AUG-2007 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 26979 **Borehole MD:** Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112800 **Rkb Elevation:** 92 Paleo Report Num: 2 of 4 **Sample Range:** 9320 - 11510 5667 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Big North Prospect, calcareous nannofossil report, paleo done by Anatoliy Shumnuk, nannospecies abundance and diversity charts available, see

report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9320 / 9320	DEF	AT first sample examined	DEF	AT
9321 / 9321	POS	IN Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
9470 / 9470	DEF	AT floral flood	DEF	AT
9500 / 9500	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
9530 / 9530	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
9560 / 9560	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
9680 / 9680	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
9830 / 9830	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9890 / 9890	DEF	AT local marker floral decrease	DEF	AT
9920 / 9920	DEF	AT local marker floral increase	DEF	AT
10010 / 10010	DEF	AT floral flood	DEF	AT
10130 / 10130	DEF	AT local marker floral decrease	DEF	AT
10190 / 10190	DEF	AT floral flood	DEF	AT
10250 / 10250	DEF	AT local marker floral decrease	DEF	AT
10280 / 10280	DEF	AT floral flood	DEF	AT
10430 / 10430	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
10520 / 10520	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
10580 / 10580	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
10700 / 10700	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
10910 / 10910	DEF	AT local marker floral decrease	DEF	AT
10970 / 10970	DEF	AT floral flood	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

943

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 9320 Date of Summary: 08-AUG-2007 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G18301 **Borehole MD:** 26979 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112800 **Rkb Elevation:** 92 Paleo Report Num: 2 of 4 **Sample Range:** 9320 - 11510 Water Depth: 5667 Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11000 / 11000	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT
11090 / 11090	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
11210 / 11210	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
11240 / 11240	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
11270 / 11270	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
11420 / 11420	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
11450 / 11450	DEF	IN salt	DEF	AT
11510 / 11510	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 944

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 9319 Date of Summary: 15-AUG-2007 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR **Borehole MD:** 26979 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112800 **Rkb Elevation:** 92 **Sample Range:** 9319 - 11450 Paleo Report Num: 3 of 4 5667 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Big North Prospect, paleo done by Rome Lytton II, foram species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
9319 / 9319	DEF	AT first sample examined	DEF	IN	4
9320 / 9320	DEF	IN cement	DEF	IN	4
9470 / 9470	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	IN	5
9500 / 9500	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	IN	5
9530 / 9530	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	5
9560 / 9560	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	IN	5
9589 / 9589	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	5
9590 / 9590	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
9619 / 9619	DEF	AT pyrite	DEF	IN	5
9620 / 9620	DEF	AT local marker foram decrease	DEF	IN	5
9710 / 9710	DEF	AT local marker planktic foram increase	DEF	IN	5
9770 / 9770	DEF	AT local marker foram decrease	DEF	ΑT	5
9890 / 9890	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	ΑT	5
9920 / 9920	DEF	AT faunal change (no faunal increase)	DEF	IN	5
9950 / 9950	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	ΑT	5
9980 / 9980	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	IN	5
10070 / 10070	DEF	AT pyrite	DEF	IN	5
10309 / 10309	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	IN	5
10310 / 10310	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	IN	5
10430 / 10430	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	IN	5
10489 / 10489	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	IN	5
10490 / 10490	DEF	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	IN	5

GEOLOGIC 02-FEB-2011

945

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 15-AUG-2007 First Sample Examined: 9319 Source of Paleo: OPERATOR Lease Number: G18301 **Borehole MD:** 26979 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **API Well Number:** 608174112800 **Drilling Operator: CHEVRON USA INC Rkb Elevation:** 92 Paleo Report Num: 3 of 4 **Sample Range:** 9319 - 11450 5667 Water Depth:

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			Ecozone
10520 / 10520	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	5
10550 / 10550	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	IN	5
10699 / 10699	DEF	AT pyrite	DEF	IN	5
10700 / 10700	DEF	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	IN	5
10820 / 10820	DEF	AT local marker foram decrease	DEF	IN	5
10970 / 10970	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	IN	5
11060 / 11060	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	IN	5
11180 / 11180	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	5
11270 / 11270	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	IN	5
11300 / 11300	DEF	AT reworked material	DEF	IN	5
11420 / 11420	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	5
11450 / 11450	DEF	AT last sample examined	DEF	IN	5

GEOLOGIC 02-FEB-2011 PAGE: 946

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 13264 Date of Summary: 02-NOV-2007 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR **Borehole MD:** 26979 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112800 **Rkb Elevation:** 92 Paleo Report Num: 4 of 4 **Sample Range:** 13264 - 26978 5667 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 004

Remark: Big North Prospect, paleo done by Bruce Desselle, foram species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
13264 / 13264	DEF	AT first sample examined	DEF	AT	4
13265 / 13265	DEF	IN out-of-place section	DEF	AT	4
16520 / 16514	DEF	AT reworked material	DEF	AT	4
16610 / 16603	DEF	AT faunal change (no faunal increase)	DEF	AT	5
16640 / 16632	DEF	AT foram flood	DEF	AT	5
16730 / 16721	DEF	AT reworked material	DEF	AT	5
16940 / 16929	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
17120 / 17106	DEF	AT reworked material	DEF	AT	5
17390 / 17373	DEF	AT reworked material	DEF	AT	4
17420 / 17402	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
17450 / 17432	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	5
17480 / 17461	DEF	AT local marker foram decrease	DEF	AT	5
17540 / 17520	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
17600 / 17580	DEF	AT local marker foram decrease	DEF	AT	5
18020 / 17994	DEF	AT local marker foram decrease	DEF	IN	4
18080 / 18053	DEF	AT faunal change (no faunal increase)	DEF	AT	5
18110 / 18083	DEF	AT pyrite	DEF	AT	5
18170 / 18142	DEF	AT local white Arenacous fauna	DEF	AT	5
18200 / 18171	DEF	AT pyrite	DEF	AT	5
18620 / 18583	DEF	AT Cyclammina sp. (local marker)	DEF	AT	5
18710 / 18671	DEF	AT local marker foram decrease	DEF	AT	5
19370 / 19284	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 947

Paleo ID:

004

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MC 860 Date of Summary: 02-NOV-2007 First Sample Examined: 13264

Lease Number: G18301 Source of Paleo: OPERATOR Borehole MD: 26979

Well Name: 003 Paleo Done By: OPERATOR Borehole TVD: 25274

 API Well Number:
 608174112800
 Drilling Operator:
 CHEVRON USA INC
 Rkb Elevation:
 92

 Paleo Report Num:
 4 of 4
 Sample Range:
 13264 - 26978
 Water Depth:
 5667

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		E	cozone
19640 / 19516	DEF	AT local marker deep water fauna	DEF	AT	6
19700 / 19566	DEF	AT local marker foram decrease	DEF	AT	4
19730 / 19591	DEF	AT pyrite	DEF	ΑT	4
19760 / 19616	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
19880 / 19712	DEF	AT	DEF	IN	4
20119 / 19898	DEF	AT Eggerella sp. (local marker)	POS	IN	4
20120 / 19899	DEF	AT turbid water facies	POS	IN	4
20330 / 20063	DEF	AT local marker foram increase	POS	IN	4
20360 / 20086	DEF	AT faunal change (no faunal increase)	DEF	AT	4
20390 / 20110	DEF	AT local marker foram decrease	DEF	AT	4
20480 / 20180	DEF	AT	DEF	AT	5
20509 / 20203	DEF	AT Bathysiphon fauna	POS	AT	5
20510 / 20204	DEF	AT turbid water facies	POS	AT	5
20570 / 20250	DEF	AT local marker foram decrease	DEF	AT	5
20600 / 20274	DEF	AT turbid water facies	POS	AT	5
20749 / 20390	DEF	AT Arenaceous fauna (local marker)	POS	AT	5
20750 / 20391	DEF	AT foram flood	POS	AT	5
20840 / 20461	DEF	AT Arenaceous fauna (local marker)	POS	AT	5
20870 / 20485	DEF	AT Bathysiphon fauna	POS	AT	5
20960 / 20555	DEF	AT local marker foram decrease	POS	AT	5
21940 / 21317	DEF	AT Arenaceous fauna (local marker)	POS	AT	5
22000 / 21363	DEF	AT local marker foram decrease	POS	AT	5
22090 / 21432	DEF	AT pyrite	DEF	AT	5
22180 / 21502	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	ΑT	5

**GEOLOGIC** 02-FEB-2011 PAGE: 948

Paleo ID:

004

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 02-NOV-2007 First Sample Examined: 13264 Source of Paleo: OPERATOR Lease Number: G18301 **Borehole MD:** 26979 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC Rkb Elevation:** 92

**API Well Number:** 608174112800 Paleo Report Num: 4 of 4 **Sample Range:** 13264 - 26978 5667 Water Depth:

Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
22300 / 21595	DEF	AT faunal change (no faunal increase)	DEF	AT	4
22390 / 21665	DEF	AT	DEF	AT	5
22595 / 21827	DEF	AT	DEF	ΑT	4
22660 / 21878	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
22899 / 22066	DEF	AT Bathysiphon fauna	POS	ΑT	5
22900 / 22067	DEF	AT turbid water facies	POS	ΑT	5
22990 / 22138	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
23080 / 22209	DEF	AT local marker planktic foram increase	DEF	ΑT	5
23110 / 22232	DEF	AT Bathysiphon fauna	DEF	ΑT	5
23200 / 22303	DEF	AT turbid water facies	POS	ΑT	5
23350 / 22421	DEF	AT local marker planktic foram increase	DEF	ΑT	5
23380 / 22445	DEF	AT foram flood	DEF	ΑT	5
23590 / 22610	DEF	AT turbid water facies	POS	ΑT	5
23680 / 22681	DEF	AT Arenaceous fauna (local marker)	POS	ΑT	5
24460 / 23295	DEF	AT Bathysiphon fauna	POS	ΑT	5
24520 / 23343	DEF	AT local marker foram increase	DEF	ΑT	4
24730 / 23508	DEF	AT turbid water facies	POS	ΑT	4
24760 / 23532	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
24820 / 23579	DEF	AT local marker foram decrease	DEF	ΑT	4
24850 / 23602	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
24910 / 23650	DEF	AT transported shelf fauna	POS	ΑT	5
25029 / 23743	DEF	AT pyrite	POS	ΑT	5
25030 / 23744	DEF	AT Middle Miocene (Langhian) Globorotalia siakensis (coiling change left/right)	POS	ΑT	5
25210 / 23885	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 949

Paleo ID:

004

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 02-NOV-2007 First Sample Examined: 13264 Source of Paleo: OPERATOR Lease Number: G18301 **Borehole MD:** 26979 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 25274 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112800 **Rkb Elevation:** 92

> Paleo Report Num: 4 of 4 **Sample Range:** 13264 - 26978 5667 Water Depth:

Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
25360 / 24002	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	4
25390 / 24026	DEF	AT pyrite	DEF	AT	4
25660 / 24237	DEF	AT local marker foram increase	DEF	AT	5
25750 / 24308	DEF	AT local marker foram decrease	DEF	AT	4
26020 / 24520	POS	AT local marker foram increase	DEF	AT	5
26049 / 24543	POS	AT glauconite	DEF	AT	5
26050 / 24543	DEF	AT foram flood	DEF	AT	5
26139 / 24613	POS	AT glauconite	DEF	AT	5
26140 / 24614	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	5
26230 / 24685	DEF	AT local marker foram decrease	DEF	IN	4
26320 / 24756	DEF	AT local marker planktic foram increase	DEF	AT	5
26439 / 24849	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
26440 / 24850	DEF	AT local marker planktic foram increase	DEF	AT	5
26500 / 24897	DEF	AT local marker foram decrease	DEF	IN	4
26860 / 25180	DEF	AT transported shelf fauna	DEF	IN	4
26950 / 25251	DEF	AT foram flood	DEF	AT	5
26976 / 25271	DEF	AT last sample examined	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 950

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 26980 Date of Summary: 01-SEP-2007 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 29821 **Borehole MD:** Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 27857 **API Well Number:** 608174112801 **Drilling Operator: CHEVRON USA INC Rkb Elevation:** 92 Paleo Report Num: 1 of 2 **Sample Range:** 26980 - 29780 5667 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Big North Prospect, calcareous nannofossil report, paleo done by Anatoliy Shumnuk, nannospecies abundance and diversity chart available, see report

for details

**Paleo Top Description** 

		Taleo Top Bescription		LCOZOTIC
26980 / 25300	DEF	AT first sample examined	DEF	AT
26981 / 25300	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
27020 / 25333	DEF	AT local marker floral decrease	DEF	AT
27110 / 25408	DEF	AT local marker floral increase	DEF	AT
27200 / 25485	DEF	AT local marker floral decrease	DEF	AT
27350 / 25612	DEF	AT local marker floral increase	DEF	AT
27410 / 25664	DEF	AT local marker floral decrease	DEF	AT
27490 / 25733	DEF	AT floral flood	DEF	AT
27540 / 25776	DEF	AT local marker floral decrease	DEF	AT
27860 / 26056	DEF	AT floral flood	DEF	AT
28010 / 26190	DEF	AT local marker floral decrease	DEF	AT
28130 / 26297	DEF	AT local marker floral increase	DEF	AT
28219 / 26377	DEF	AT floral flood	DEF	AT
28220 / 26378	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
28460 / 26595	DEF	AT local marker floral decrease	DEF	AT
28700 / 26813	DEF	AT floral flood	DEF	AT
28910 /27006	DEF	AT local marker floral decrease	DEF	AT
28970 /27061	DEF	AT floral flood	DEF	AT
29150 / 27228	DEF	AT local marker floral decrease	DEF	AT
29240 / 27312	DEF	AT reworked material	DEF	AT
29389 / 27451	DEF	AT floral flood	DEF	AT

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 951

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 01-SEP-2007 First Sample Examined: 26980 Source of Paleo: OPERATOR Lease Number: G18301 **Borehole MD:** 29821 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 27857 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112801 **Rkb Elevation:** 92 Paleo Report Num: 1 of 2 **Sample Range:** 26980 - 29780 5667 Water Depth:

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
29390 / 27452	DEF	AT Middle Miocene (Langhian) Discoaster calculosus	DEF	AT
29600 / 27649	DEF	AT local marker floral decrease	DEF	AT
29750 / 27790	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
29780 / 27818	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 952

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 27020 Date of Summary: 09-NOV-2007 First Sample Examined: Lease Number: G18301 Source of Paleo: OPERATOR 29821 **Borehole MD:** Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 27857 **Drilling Operator: CHEVRON USA INC API Well Number:** 608174112801 **Rkb Elevation:** 92 Paleo Report Num: 2 of 2 **Sample Range:** 27020 - 29820 5667 Water Depth: Public Info Code: Y 14-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Big North Prospect, paleo done by Bruce Desselle, foram species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
27020 / 25333	DEF	AT first sample examined	DEF	AT	5
27021 / 25334	DEF	IN Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	5
27259 / 25535	DEF	AT Bathysiphon fauna	DEF	AT	5
27260 / 25535	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	5
27350 / 25612	DEF	AT transported inner shelf facies	POS	AT	5
27380 / 25638	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	5
27410 / 25664	DEF	AT local marker foram decrease	DEF	AT	5
27500 / 25741	DEF	AT local marker planktic foram increase	DEF	AT	5
27679 / 25897	DEF	AT pyrite	POS	AT	5
27680 / 25898	DEF	AT transported inner shelf facies	POS	AT	5
27710 / 25924	DEF	AT local marker foram decrease	POS	AT	5
27860 / 26056	DEF	AT foram flood	DEF	AT	5
27920 / 26110	DEF	AT local marker foram decrease	DEF	AT	5
27980 / 26163	DEF	AT Bathysiphon fauna	DEF	AT	5
28070 / 26244	DEF	AT pyrite	DEF	AT	5
28130 / 26297	DEF	AT Middle Miocene (Langhian) Cibicides 38	DEF	AT	5
28220 / 26378	DEF	AT foram flood	DEF	AT	5
28340 / 26486	DEF	AT local marker benthic foram increase	DEF	AT	5
28460 / 26595	DEF	AT local marker foram decrease	DEF	IN	4
28700 / 26813	DEF	AT local marker deep water fauna	DEF	AT	5
28850 / 26951	DEF	AT faunal change (no faunal increase)	DEF	IN	4
28970 / 27061	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	IN	4

GEOLOGIC 02-FEB-2011

953

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 860 Date of Summary: 09-NOV-2007 First Sample Examined: 27020 Source of Paleo: OPERATOR Lease Number: G18301 **Borehole MD:** 29821 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 27857 **API Well Number:** 608174112801 **Drilling Operator: CHEVRON USA INC Rkb Elevation:** 92 Paleo Report Num: 2 of 2 **Sample Range: 27020 - 29820** 5667 Water Depth:

Public Info Code: Y 14-JUN-2008 Ecozone Eq MMS: Y

	MD / TVD		Paleo Top Description		<u>E</u>	cozone
29	000 / 27089	DEF	AT foram flood	DEF	AT	5
29	120 /27200	DEF	AT pyrite	DEF	AT	5
29	240 / 27312	DEF	AT siltstone	DEF	AT	5
29	360 / 27424	DEF	AT transported inner shelf facies	POS	AT	5
29	390 / 27452	POS	IN Lower Miocene (Burdigalian) Catapsydrax stainforthi	DEF	AT	5
29	419 / 27479	DEF	AT Bathysiphon fauna	DEF	IN	4
29	420 / 27480	DEF	AT Lower Miocene (Burdigalian) Saracenaria sp. / "D"	DEF	IN	4
29	480 / 27536	DEF	AT Lower Miocene (Burdigalian) Gyroidina "K" / 9 / 4	DEF	IN	4
29	540 / 27592	DEF	AT Eggerella sp. (local marker)	DEF	IN	4
29	690 / 27733	DEF	AT turbid water facies	POS	IN	4
29	720 / 27762	DEF	AT faunal change (no faunal increase)	DEF	IN	4
29	779 / 27817	DEF	AT turbid water facies	POS	IN	4
29	780 / 27818	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	POS	IN	4
29	820 / 27856	DEF	AT last sample examined	POS	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 954

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 4900 First Sample Examined: Lease Number: G24121 Source of Paleo: OPERATOR 23385 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 23351 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 608174100200 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 4900 - 23385 2084 Water Depth: Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Yorktown Prospect, foram species abundance and diversity chart available, see report for details

MD/TVD	_	Paleo Top Description		<u>E</u>	cozone
4900 / 4900	DEF	AT first sample examined	DEF	AT	5
4959 / 4959	DEF	AT pyrite	DEF	AT	5
4960 / 4960	DEF	AT local marker planktic foram increase	DEF	AT	5
5050 / 5050	POS	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
5110 / 5110	DEF	AT pyrite	DEF	AT	5
5170 / 5170	DEF	AT local marker benthic foram increase	DEF	AT	5
5260 / 5260	DEF	AT	POS	AT	5
5860 / 5860	DEF	AT pyrite	POS	AT	5
5889 / 5889	DEF	AT local marker planktic foram increase	DEF	AT	6
5890 / 5890	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	6
5920 / 5920	DEF	IN Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	6
5949 / 5949	DEF	AT pyrite	DEF	AT	5
5950 / 5950	DEF	AT local marker foram decrease	DEF	AT	5
6040 / 6040	DEF	AT	POS	AT	5
6160 / 6160	DEF	AT pyrite	POS	AT	5
6219 / 6218	DEF	AT foram flood	DEF	AT	6
6220 / 6219	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	6
6250 / 6249	DEF	AT	DEF	AT	5
6340 / 6339	POS	AT pyrite	DEF	AT	5
6460 / 6459	DEF	AT	POS	AT	5
6700 / 6698	DEF	AT	DEF	AT	5
6759 / 6757	DEF	AT reworked material	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 955

Water Depth:

Paleo ID:

2084

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 First Sample Examined: 4900 Lease Number: G24121 Source of Paleo: OPERATOR **Borehole MD:** 23385 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 23351 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 608174100200 **Rkb Elevation:** 86

Paleo Report Num: 1 of 2 Sample Range: 4900 - 23385

Public Info Code: Y 19-SEP-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
6760 / 6758	POS	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	5
6790 / 6788	DEF	AT	POS	AT	5
7179 / 7177	DEF	AT foram flood	DEF	AT	6
7180 / 7178	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	6
7210 / 7208	DEF	AT local marker (general)	DEF	AT	5
7270 / 7267	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	5
7300 / 7297	DEF	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	5
7330 / 7327	POS	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
7420 / 7417	DEF	AT cement	POS	AT	5
7450 / 7447	DEF	AT pyrite	POS	AT	5
7690 / 7687	DEF	AT pyrite	POS	AT	5
7719 / 7716	DEF	AT gypsum	POS	AT	5
7720 / 7717	POS	IN salt	POS	AT	5
7780 / 7777	DEF	AT salt	POS	AT	5
16230 / 16216	DEF	AT base of salt	DEF	AT	4
16231 / 16217	DEF	AT out-of-place section	DEF	AT	4
16232 / 16218	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
16260 / 16246	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
16290 / 16276	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
16319 / 16305	DEF	AT pyrite	DEF	AT	5
16320 / 16306	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
16350 / 16336	DEF	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
16410 / 16396	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
16440 / 16426	DEF	AT	POS	AT	5

**GEOLOGIC** 02-FEB-2011 PAGE: 956

Water Depth:

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 First Sample Examined: 4900 Lease Number: G24121 Source of Paleo: OPERATOR **Borehole MD:** 23385 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 23351

**Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 608174100200 **Rkb Elevation:** 86 2084

Paleo Report Num: 1 of 2 **Sample Range:** 4900 - 23385

Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Ec	ozone
16520 / 16506	DEF	AT pyrite	DEF	AT	5
16550 / 16536	DEF	AT local marker benthic foram increase	DEF	AT	5
16570 / 16556	DEF	AT cement	POS	AT	5
16710 / 16696	POS	IN Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	6
16740 / 16726	DEF	AT pyrite	DEF	AT	6
16770 / 16756	DEF	AT	DEF	AT	5
16955 / 16941	DEF	AT sample gap top	POS	AT	5
17075 / 17061	DEF	AT sample gap bottom	POS	AT	5
17100 / 17086	DEF	AT cement	DEF	AT	4
17160 / 17146	DEF	AT pyrite	DEF	AT	4
17190 / 17176	DEF	AT	POS	AT	4
17280 / 17266	DEF	AT pyrite	POS	AT	4
17340 / 17326	DEF	AT	DEF	AT	5
17430 / 17416	DEF	AT pyrite	POS	AT	5
17490 / 17476	DEF	AT drilling material	POS	AT	5
17790 / 17776	DEF	AT pyrite	POS	AT	5
17939 / 17924	DEF	AT pyrite	POS	AT	5
17940 / 17925	POS	AT local marker foram increase	POS	AT	5
18060 / 18044	DEF	AT drilling material	POS	AT	5
18210 / 18192	POS	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
18298 / 18279	DEF	AT	POS	AT	4
18320 / 18300	DEF	AT cement	POS	AT	4
18540 / 18517	DEF	AT drilling material	POS	AT	4
18630 / 18606	POS	AT pyrite	POS	AT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 957

Water Depth:

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 First Sample Examined: 4900 Lease Number: G24121 Source of Paleo: OPERATOR **Borehole MD:** 23385 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 23351

**Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 608174100200 **Rkb Elevation:** 86 2084

Paleo Report Num: 1 of 2 **Sample Range:** 4900 - 23385

Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Ec	ozone
18870 / 18844	DEF	AT	DEF	AT	5
18930 / 18904	DEF	AT pyrite	DEF	AT	5
19020 / 18993	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
19140 / 19113	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
19380 / 19352	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
19410 / 19381	DEF	AT pyrite	DEF	AT	5
19560 / 19531	DEF	AT	POS	AT	5
19890 / 19860	DEF	AT	DEF	AT	4
20026 / 19996	DEF	AT pyrite	DEF	AT	4
20100 / 20070	DEF	AT pyrite	DEF	AT	4
20149 / 20119	DEF	AT pyrite	DEF	AT	4
20150 / 20120	DEF	AT Upper Miocene (Tortonian) Discamminoides tobleri	DEF	AT	4
20330 / 20299	POS	AT pyrite	DEF	AT	4
21080 / 21048	DEF	AT drilling material	POS	AT	4
21230 / 21198	DEF	AT	DEF	AT	4
21350 / 21318	DEF	AT drilling material	DEF	AT	4
21650 / 21618	DEF	AT reworked material	DEF	AT	4
21950 / 21917	DEF	AT Bathysiphon fauna	DEF	AT	4
22069 / 22036	DEF	AT reworked material	DEF	AT	4
22070 / 22037	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
22195 / 22162	DEF	AT	POS	AT	4
22370 / 22337	POS	AT Arenaceous fauna (local marker)	DEF	AT	4
22490 / 22457	POS	AT Arenaceous fauna (local marker)	DEF	AT	4
22550 / 22517	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4

**GEOLOGIC** 02-FEB-2011

958

001

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 First Sample Examined: 4900 Lease Number: G24121 Source of Paleo: OPERATOR **Borehole MD:** 23385 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 23351 86

> **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 608174100200 **Rkb Elevation:** 2084 Water Depth:

Paleo Report Num: 1 of 2 **Sample Range:** 4900 - 23385

Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u> </u>	cozone
22580 / 22547	DEF	AT Bathysiphon fauna	DEF	AT	4
22700 / 22667	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
22819 / 22786	DEF	AT pyrite	DEF	ΑT	5
22820 / 22787	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	ΑT	5
22910 / 22877	DEF	AT pyrite	DEF	ΑT	5
22940 / 22907	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	ΑT	5
23090 / 23057	DEF	AT limestone	DEF	ΑT	5
23120 / 23087	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	5
23240 / 23207	DEF	AT local marker foram increase	DEF	ΑT	5
23300 / 23267	DEF	AT pyrite	DEF	ΑT	5
23385 / 23351	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE:

959

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 First Sample Examined: 4883 Lease Number: G24121 Source of Paleo: OPERATOR 23385 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 23351 **API Well Number:** 608174100200 **Drilling Operator: DEVON LOUISIANA CORPORATION Rkb Elevation:** 86 **Sample Range:** 4883 - 23385 Paleo Report Num: 2 of 2 Water Depth: 2084 Public Info Code: Y 19-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Yorktown Prospect, calcareous nannofossil report, the first several samples directly underneath (16230-16290) the salt contains a mixture of middle and Upper Miocene nannos, from 16290 to at least 16519 the flora appear to be in reverse order (upside-down), 16550 is believed to be the top of the in-

place section, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
4883 / 4883	DEF	AT first sample examined	DEF	AT
4930 / 4930	DEF	IN Middle Pleistocene (Ionian) Gephyrocapsa parallela	DEF	AT
4960 / 4960	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
5590 / 5590	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
5920 / 5920	DEF	AT Lower Pleistocene (Calabrian) Scyphosphaera pulcherima	DEF	AT
6220 / 6219	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6370 / 6369	DEF	IN Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6670 / 6668	DEF	AT reworked material	DEF	AT
6910 / 6908	DEF	AT reworked material	DEF	AT
7090 / 7088	DEF	AT reworked material	DEF	AT
7180 / 7178	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
7240 / 7237	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
7450 / 7447	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
7780 / 7777	DEF	AT salt	DEF	AT
16230 / 16216	DEF	AT base of salt	DEF	AT
16231 / 16217	DEF	AT out-of-place section	DEF	AT
16232 / 16218	POS	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
16290 / 16276	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16380 / 16366	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16410 / 16396	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT

GEOLOGIC 02-FEB-2011

960

002

PAGE:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 886 Date of Summary: 01-OCT-2003 First Sample Examined: 4883 Lease Number: G24121 Source of Paleo: OPERATOR 23385 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 23351 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 608174100200 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 4883 - 23385 Water Depth: 2084

Public Info Code: Y 19-SEP-2010 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
16440 / 16426	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
16470 / 16456	POS	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
16550 / 16536	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16712 / 16698	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
16830 / 16816	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16920 / 16906	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
16955 / 16941	DEF	AT sample gap top	DEF	AT
17075 / 17061	DEF	AT sample gap bottom	DEF	AT
17340 / 17326	DEF	IN Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
17970 / 17955	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
18150 / 18133	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	AT
18780 / 18755	POS	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT
19140 / 19113	DEF	AT Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT
19410 / 19381	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
20120 / 20090	POS	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
20600 / 20569	DEF	IN Upper Miocene (Tortonian) Helicosphaera walbersdorfensis	DEF	AT
21630 / 21598	DEF	AT reworked material	DEF	AT
22070 / 22037	DEF	AT reworked material	DEF	AT
22190 / 22157	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
22430 / 22397	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri (increase)	DEF	AT
22550 / 22517	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
22790 / 22757	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
22910 / 22877	DEF	IN Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
23360 / 23326	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 961

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Public Info Code: Y 07-JAN-2008

Area Block: MC 899 6300 Date of Summary: 30-DEC-1997 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR **Borehole MD:** 20014 Well Name: 005 Paleo Done By: OPERATOR **Borehole TVD:** 19418 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174058000 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 Sample Range: 6300 - 19911 Water Depth: 4394

**Ecozone Eq MMS:** Y

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		!	<u>Ecozone</u>
8500 / 8500	DEF	AT first sample examined	DEF	AT	4
8800 / 8800	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	POS	AT	4
8980 / 8980	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	POS	AT	4
9070 / 9070	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	POS	AT	4
9220 / 9220	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	POS	AT	4
9250 / 9250	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
9280 / 9280	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
9340 / 9340	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
9490 / 9490	DEF	AT	DEF	AT	4
9760 / 9760	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	4
10000 / 10000	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
10060 / 10060	DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT	5
10179 / 10179	DEF	IN Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
10180 / 10180	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
10420 / 10420	DEF	AT	DEF	AT	4
10660 / 10660	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	4
11080 / 11080	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	ΑT	4
11170 / 11170	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	ΑT	4
14020 / 14019	DEF	AT	POS	AT	4
14440 / 14439	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	POS	ΑT	4
14470 / 14469	DEF	AT	POS	AT	5
15970 / 15944	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	POS	ΑT	5

**GEOLOGIC** 02-FEB-2011

962

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 Date of Summary: 30-DEC-1997 First Sample Examined: 6300 Source of Paleo: OPERATOR Lease Number: G09896 **Borehole MD:** 20014 Well Name: 005 Paleo Done By: OPERATOR **Borehole TVD:** 19418 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174058000 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 6300 - 19911 4394 Water Depth: Paleo ID: 001

Public Info Code: Y 07-JAN-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
17740 / 17528	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	POS	AT	5
17920 / 17684	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	POS	AT	5
18160 / 17891	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	5
18550 / 18220	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	5
19458 / 18961	DEF	AT	POS	AT	4
19911 / 19336	DEF	AT last sample examined	POS	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 963

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 Date of Summary: 23-JAN-1998 15030 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR **Borehole MD:** 19782 Well Name: 005 Paleo Done By: OPERATOR **Borehole TVD:** 18790 **Drilling Operator:** BP EXPLORATION & OIL INC **API Well Number:** 608174058001 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 15030 - 19782 4393 Water Depth: Public Info Code: Y 03-FEB-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		Eco	zone
15030 / 15025	DEF	AT first sample examined	DEF	AT	6
15720 / 15682	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	6
15840 / 15793	DEF	AT	POS	AT	6
16200 / 16113	DEF	AT	DEF	AT	5
16380 / 16262	DEF	AT local marker deep water fauna	DEF	AT	5
18660 / 17965	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	5
19170 / 18339	POS	AT Upper Miocene (Tortonian) Discorbis 12	POS	AT	5
19230 / 18383	DEF	AT local marker deep water fauna	DEF	AT	5
19410 / 18516	DEF	AT	POS	AT	5
19782 / 18790	DEF	AT last sample examined	POS	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

964

Ecozono

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 11980 Date of Summary: 01-MAY-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR 20363 **Borehole MD:** Well Name: SS006 Paleo Done By: OPERATOR **Borehole TVD:** 18255 **API Well Number: 608174087800 Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 **Sample Range:** 11980 - 20363 Paleo Report Num: 1 of 3 Water Depth: 4393 Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: Company-integrated foram and nanno report, 16228=possible disconformity, 19610=sheath appears inverted below salt, 19879=base of sheath, top of

normal section

Pales Top Description

MD / TVD		Paleo Top Description		<u>E</u>	<u>cozone</u>
11980 / 11506	DEF	AT first sample examined	DEF	AT	4
11981 / 11507	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	4
12400 / 11732	POS	AT reworked material	DEF	AT	4
13120 / 12132	DEF	IN Upper Miocene (Tortonian) Discoaster bergenii (variety)	DEF	AT	4
14590 / 12968	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	4
15400 / 13524	DEF	AT reworked material	DEF	AT	4
16080 / 14101	POS	AT reworked material	DEF	AT	4
16228 / 14236	DEF	AT unconformity	DEF	AT	4
16229 / 14237	POS	AT condensed section	DEF	AT	4
16230 / 14238	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	4
16490 / 14482	DEF	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	4
16640 / 14625	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	4
16790 / 14768	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	4
16830 / 14807	DEF	AT condensed section	DEF	AT	4
16910 / 14884	DEF	IN salt	DEF	ΑT	4
19609 / 17508	DEF	AT base of salt	DEF	ΑT	4
19610 / 17509	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	ΑT	4
19690 / 17588	POS	IN Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT	4
19703 / 17601	DEF	IN Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT	4
19879 / 17775	POS	AT out-of-place section	DEF	AT	4
19880 / 17776	POS	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	4

**GEPALDET** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 965

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 Date of Summary: 01-MAY-2000 First Sample Examined: 11980 Source of Paleo: OPERATOR Lease Number: G09896 **Borehole MD:** 20363 Well Name: SS006 Paleo Done By: OPERATOR **Borehole TVD:** 18255 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174087800 **Rkb Elevation:** 85 Paleo Report Num: 1 of 3 **Sample Range:** 11980 - 20363 4393 Water Depth: Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 003

MD / TVD	Paleo Top Description	<u>Ecozone</u>
20140 / 18034	POS IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF AT 4
20230 / 18123	DEF AT Upper Miocene (Tortonian) Discoaster bollii	DEF AT 4
20363 / 18255	DEF AT last sample examined	DEF AT 4

GEOLOGIC 02-FEB-2011

966

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 11980 Date of Summary: 15-MAY-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR 20363 **Borehole MD:** Well Name: SS006 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18255 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174087800 **Rkb Elevation:** 85 Paleo Report Num: 2 of 3 **Sample Range:** 11980 - 20350 4393 Water Depth: Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Crosby Prospect

MD / TVD		Paleo Top Description		Eco	zone
11980 / 11506	DEF	AT first sample examined	DEF	AT	5
11981 / 11507	DEF	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
12010 / 11522	DEF	AT	DEF	AT	4
12730 / 11916	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
12910 / 12017	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	4
14050 / 12659	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
14200 / 12745	DEF	AT	DEF	AT	5
14230 / 12762	DEF	AT	DEF	AT	4
14320 / 12813	DEF	AT	DEF	AT	5
14350 / 12830	DEF	AT	DEF	AT	4
14530 / 12933	DEF	IN	DEF	AT	5
14560 / 12951	DEF	AT	DEF	AT	4
14590 / 12968	DEF	AT	DEF	AT	5
14620 / 12986	DEF	AT	DEF	AT	4
15310 / 13454	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
16260 / 14265	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	4
16290 / 14293	DEF	AT local marker planktic foram increase	DEF	AT	4
16330 / 14330	DEF	AT	DEF	AT	5
16360 / 14359	DEF	AT	DEF	AT	4
16440 / 14434	DEF	AT	DEF	AT	5
16480 / 14472	DEF	AT	DEF	AT	4
16530 / 14520	DEF	AT	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 967

**Ecozone** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 11980 Date of Summary: 15-MAY-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR 20363 **Borehole MD:** Well Name: SS006 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18255 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174087800 **Rkb Elevation:** 85 **Sample Range:** 11980 - 20350 Paleo Report Num: 2 of 3 4393 Water Depth: Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

		Paleo Top Description		=	<u> cozone</u>
16540 / 14529	DEF	IN	DEF	AT	4
16580 / 14567	DEF	AT	DEF	AT	5
16600 / 14587	DEF	AT	DEF	AT	4
16680 / 14663	DEF	AT	DEF	AT	5
16690 / 14672	DEF	AT	DEF	AT	4
16749 / 14729	DEF	AT reworked material	DEF	AT	4
16750 / 14730	POS	AT Lower (Early) Miocene	DEF	AT	4
16751 / 14731	POS	AT Oligocene	DEF	AT	4
16759 / 14739	DEF	AT reworked material	DEF	AT	4
16760 / 14740	POS	AT Oligocene Anahuac Formation/Provincial Stage	DEF	AT	4
16799 / 14777	DEF	AT reworked material	DEF	AT	4
16800 / 14778	POS	AT Oligocene	DEF	AT	4
16870 / 14845	POS	AT Lower (Early) Miocene	DEF	AT	4
16871 / 14846	POS	AT Oligocene	DEF	AT	4
16880 / 14855	DEF	AT	DEF	AT	5
16890 / 14865	DEF	AT	DEF	AT	4
17020 / 14991	DEF	AT	DEF	AT	5
17030 / 15001	DEF	AT	DEF	AT	4
17990 / 15928	DEF	AT	DEF	AT	5
19650 / 17549	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	IN	4
19680 / 17578	DEF	AT	DEF	AT	4
19740 / 17638	DEF	AT	DEF	AT	5
19780 / 17677	DEF	AT	DEF	AT	4
20350 / 18242	DEF	AT last sample examined	DEF	AT	4

This report contains public paleo reports only for the time period stated

Paleo Top Description

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 968

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 11980 Date of Summary: 01-JUN-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR 20363 **Borehole MD:** Well Name: SS006 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 18255 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174087800 **Rkb Elevation:** 85 Paleo Report Num: 3 of 3 **Sample Range:** 11980 - 20360 Water Depth: 4393 Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Crosby Prospect, calcareous nannofossil report, 20050=Catinaster coalitus persistent to base of section, 20150=Discoaster hamatus persistent to base

of section

MD / TVD		Paleo Top Description		<u>Ecozone</u>
11980 / 11506	DEF	AT first sample examined	DEF	AT
11981 / 11507	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
12310 / 11683	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
12550 / 11814	POS	AT Upper Miocene (Tortonian) Discoaster bergenii (variety)	DEF	AT
14170 / 12728	DEF	AT local marker floral increase	DEF	AT
14680 / 13022	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
15990 / 14019	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
16080 / 14101	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
16140 / 14155	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
16230 / 14238	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
16260 / 14265	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
16440 / 14434	POS	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
16490 / 14482	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16640 / 14625	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
16680 / 14663	POS	AT Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	AT
16770 / 14749	DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	AT
16830 / 14807	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
16880 / 14855	DEF	AT reworked material	DEF	AT
16910 / 14884	DEF	IN Upper Miocene (Tortonian) Catinaster coalitus (very rare)	DEF	AT
16911 / 14885	DEF	AT salt	DEF	AT
19400 / 17302	DEF	AT base of salt	DEF	AT

**GEOLOGIC** 02-FEB-2011

969

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 11980 Date of Summary: 01-JUN-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR 20363 **Borehole MD:** Well Name: SS006 Paleo Done By: BUGWARE, INC. **Borehole TVD:** 18255 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174087800 **Rkb Elevation:** 85 Paleo Report Num: 3 of 3 **Sample Range:** 11980 - 20360 Water Depth: 4393 Paleo ID: 002

Public Info Code: Y 25-MAY-2010 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<u>Ecozone</u>
19640 / 17539	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
19641 / 17540	POS	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
19642 / 17541	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (very rare)	DEF	AT
19670 / 17568	POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
19680 / 17578	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT
19700 / 17598	DEF	AT local marker floral increase	DEF	AT
19720 / 17618	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
19721 / 17619	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	AT
19860 / 17756	DEF	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
19890 / 17786	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
20050 / 17945	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
20150 / 18044	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
20260 / 18153	DEF	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
20347 / 18239	DEF	IN Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
20348 / 18240	DEF	IN Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
20349 / 18241	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
20350 / 18242	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

970

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 17825 Date of Summary: 16-MAY-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR 20401 **Borehole MD:** Well Name: SS006 Paleo Done By: OPERATOR **Borehole TVD:** 18270 **API Well Number:** 608174087802 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 85 **Sample Range:** 17825 - 20402 Paleo Report Num: 1 of 1 Water Depth: 4393 Public Info Code: Y 09-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Calcareous nannofossil report, 18999=disconformity, 19000=top of sheath which appears inverted, and reworked Paleogene nannos noted,

19160=base of sheath, floral change and disconformity

MD / TVD		Paleo Top Description		<b>Ecozone</b>
17825 / 15761	DEF	AT first sample examined	DEF	AT
17826 / 15762	DEF	IN salt	DEF	AT
18999 / 16888	POS	AT unconformity	DEF	AT
19000 / 16889	DEF	AT reworked material	DEF	AT
19001 / 16890	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
19160 / 17045	POS	AT unconformity	DEF	AT
19219 / 17103	POS	AT reworked material	DEF	AT
19220 / 17104	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
19320 / 17201	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
19321 / 17202	POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
19659 / 17534	POS	AT reworked material	DEF	AT
19660 / 17535	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
20402 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

971

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 899 18820 Date of Summary: 28-JUN-2000 First Sample Examined: Lease Number: G09896 Source of Paleo: OPERATOR **Borehole MD:** 20859 Well Name: SS006 Paleo Done By: OPERATOR **Borehole TVD:** 18498 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **API Well Number:** 608174087804 **Rkb Elevation:** 85 **Sample Range:** 18820 - 20810 4393 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 01-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, 19310=definite top of sheath and disconformity, 19390=base of sheath and disconformity, 19940=slight floral

assemblage change

MD / TVD		Paleo Top Description		<u>Ecozone</u>
18820 / 16703	DEF	AT first sample examined	DEF	AT
18821 / 16704	DEF	IN salt	DEF	AT
19280 / 17123	POS	AT base of salt	DEF	AT
19309 / 17149	POS	AT unconformity	DEF	AT
19310 / 17150	DEF	IN Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
19389 / 17221	DEF	AT unconformity	DEF	AT
19390 / 17222	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
20340 / 18044	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
20670 / 18329	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
20810 / 18454	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 972

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 Date of Summary: 01-NOV-1998 13980 First Sample Examined: Lease Number: G16661 Source of Paleo: OPERATOR 16600 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 15101 **API Well Number: 608174082001** Drilling Operator: VASTAR RESOURCES INC. **Rkb Elevation:** 82 **Sample Range:** 10200 - 16600 3927 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 05-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Bypass report, 15780=Anomalina semicribratus, 16260 and 16380=rare occurrence of Bolivina thalmanni, reworked, 16320=Robulus 64

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
13980 / 13150	DEF	AT first sample examined	DEF	AT	6
13981 / 13151	DEF	IN Miocene	DEF	AT	6
14100 / 13234	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14340 / 13406	DEF	AT local marker foram decrease	DEF	AT	5
14670 / 13648	DEF	AT local marker planktic foram increase	DEF	AT	6
14880 / 13805	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14940 / 13850	POS	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	5
15270 / 14094	POS	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	6
15300 / 14116	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6
15420 / 14205	DEF	AT faunal change (no faunal increase)	DEF	AT	5
15600 / 14341	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	5
15780 / 14476	DEF	AT local marker (general)	DEF	AT	5
15960 / 14612	DEF	AT sample gap top	POS	AT	5
16050 / 14681	DEF	AT sample gap bottom	DEF	AT	5
16260 / 14841	DEF	AT reworked material	DEF	AT	5
16320 / 14887	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	5
16600 / 15102	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

973

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 14000 Date of Summary: 15-DEC-1998 First Sample Examined: Lease Number: G16661 Source of Paleo: OPERATOR 16600 **Borehole MD:** Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 15101 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174082001 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 14000 - 16590 3927 Water Depth: Public Info Code: Y 05-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report for bypass, 14001=Discoaster neoerectus, middle Miocene reworking begins at 14670 and occurs through last sample

examined

MD/TVD	_	Paleo Top Description		<u>Ecozone</u>
14000 / 13164	DEF	AT first sample examined	DEF	AT
14001 / 13165	DEF	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
14130 / 13255	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
14490 / 13515	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
14670 / 13648	DEF	AT reworked material	DEF	AT
16080 / 14704	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16380 / 14933	DEF	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
16470 / 15002	DEF	AT Upper Miocene (Tortonian) Discoaster bellus	DEF	AT
16590 / 15094	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 974

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 16480 Date of Summary: 01-MAR-1999 First Sample Examined: Lease Number: G16661 Source of Paleo: OPERATOR 22435 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 21745 **API Well Number:** 608174082003 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 82 Water Depth: 3927 Paleo Report Num: 1 of 2 **Sample Range:** 11080 - 22420 Public Info Code: Y 23-MAR-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: 19630=middle Miocene zone of reworking, the rarity or lack of Bolivina (20080), Bolivina L (20140), Gyroidina scalata, and Uvigerina 3 may be due to either environmental intolerances or possibly missing section, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
16480 / 16079	DEF	AT first sample examined	DEF	AT	6
16481 / 16080	DEF	AT local marker planktic foram increase	DEF	ΑT	6
16630 / 16214	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	6
16720 / 16294	DEF	AT transported shelf fauna	DEF	ΑT	5
16780 / 16348	POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	ΑT	5
16960 / 16509	DEF	AT faunal change (no faunal increase)	POS	ΑT	5
17380 / 16883	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
17440 / 16937	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	5
17530 / 17017	DEF	AT cement	DEF	ΑT	5
17531 / 17018	DEF	AT local marker foram decrease	DEF	ΑT	5
17920 / 17366	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
18100 / 17528	DEF	AT local marker planktic foram increase	DEF	ΑT	5
18160 / 17582	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
18310 / 17719	DEF	AT local marker foram increase	DEF	ΑT	6
18311 / 17720	DEF	AT pyrite	DEF	ΑT	6
18370 / 17774	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
18730 / 18108	DEF	AT Upper Miocene (Tortonian) Textularia "G"	DEF	ΑT	5
18850 / 18221	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	ΑT	5
19150 / 18507	DEF	AT local marker planktic foram increase	DEF	ΑT	5
19360 / 18709	DEF	AT reworked material	DEF	ΑT	5
19510 / 18853	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5

**GEOLOGIC** 02-FEB-2011 PAGE: 975

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 Date of Summary: 01-MAR-1999 First Sample Examined: 16480 Source of Paleo: OPERATOR Lease Number: G16661 **Borehole MD:** 22435 Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 21745

Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174082003 **Rkb Elevation:** 82 3927 Water Depth:

Paleo Report Num: 1 of 2 **Sample Range:** 11080 - 22420

Public Info Code: Y 23-MAR-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>į</u>	Ecozone
19630 / 18969	DEF	AT cement	DEF	AT	5
19631 / 18970	DEF	AT local marker foram decrease	DEF	AT	5
19720 / 19057	DEF	AT local marker planktic foram increase	DEF	ΑT	6
19780 / 19115	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
20020 / 19350	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
20140 / 19468	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
20350 / 19674	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
20470 / 19793	DEF	AT local marker planktic foram increase	DEF	ΑT	5
20590 / 19911	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	ΑT	5
21130 / 20445	DEF	AT faunal change (no faunal increase)	POS	ΑT	5
21430 / 20744	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
21460 / 20774	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	5
21640 / 20953	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
21700 / 21013	POS	IN Middle Miocene (Serravallian) Textularia "W"	DEF	ΑT	5
21850 / 21162	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF	ΑT	6
21880 / 21192	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	ΑT	6
22030 / 21342	DEF	AT local marker planktic foram increase	DEF	ΑT	6
22150 / 21461	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
22210 / 21521	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
22420 / 21730	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 976

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 16450 Date of Summary: 01-MAR-1999 First Sample Examined: Lease Number: G16661 Source of Paleo: OPERATOR 22435 **Borehole MD:** Well Name: 001 Paleo Done By: NANNO-CHRON INTERNATIONAL (W H ABBOTT) **Borehole TVD:** 21745 **API Well Number:** 608174082003 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 16450 - 22420 3927 Water Depth: Public Info Code: Y 23-MAR-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

	Paleo Top Description		<u>Ecozone</u>
DEF	AT first sample examined	DEF	AT
POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
DEF	AT Upper Miocene (Tortonian) Catinaster calyculus	DEF	AT
DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
DEF	IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
DEF	AT local marker floral increase	DEF	AT
DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
DEF	IN Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
POS	AT Middle Miocene (Serravallian) Calcidiscus premacintyrei	DEF	AT
DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (very rare)	DEF	AT
DEF	AT local marker floral increase	DEF	AT
DEF	AT last sample examined	DEF	AT
	POS DEF	DEF AT first sample examined  POS AT Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF AT Upper Miocene (Tortonian) Catinaster calyculus  DEF AT Upper Miocene (Tortonian) Discoaster bollii  DEF IN Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF AT Upper Miocene (Tortonian) Discoaster hamatus  DEF AT local marker floral increase  DEF AT Upper Miocene (Tortonian) Coccolithus miopelagicus  DEF IN Upper Miocene (Tortonian) Catinaster coalitus  POS AT Middle Miocene (Serravallian) Discoaster sanmiguelensis  DEF AT Middle Miocene (Serravallian) Discoaster sanmiguelensis  POS AT Middle Miocene (Serravallian) Calcidiscus premacintyrei  DEF AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (very rare)  DEF AT local marker floral increase	DEF AT first sample examined  POS AT Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF DEF AT Upper Miocene (Tortonian) Catinaster calyculus  DEF DEF AT Upper Miocene (Tortonian) Discoaster bollii  DEF DEF IN Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF DEF AT Upper Miocene (Tortonian) Discoaster hamatus  DEF DEF AT local marker floral increase  DEF DEF AT Upper Miocene (Tortonian) Coccolithus miopelagicus  DEF DEF AT Upper Miocene (Tortonian) Catinaster coalitus  DEF DEF AT Middle Miocene (Serravallian) Discoaster sanmiguelensis  DEF DEF AT Middle Miocene (Serravallian) Discoaster sanmiguelensis  DEF DEF AT Middle Miocene (Serravallian) Calcidiscus premacintyrei  DEF AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (very rare)  DEF DEF AT local marker floral increase  DEF

GEOLOGIC 02-FEB-2011

977

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 Date of Summary: 01-OCT-1998 First Sample Examined: 7490 Lease Number: G16661 Source of Paleo: OPERATOR **Borehole MD:** 14100 Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13125 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174082000 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 6114 - 14100 3927 Water Depth: Public Info Code: Y 26-SEP-2008 Ecozone Eq MMS: Y Paleo ID: 001

Remark: 11460=Streptochilus sp, 12300=Planulina mexicana variety

MD / TVD		Paleo Top Description		Eco	ozone
7490 / 7490	DEF	AT first sample examined	DEF	AT	5
7491 / 7491	DEF	IN Upper Pleistocene (Ionian) Globorotalia flexuosa	DEF	AT	5
7730 / 7730	DEF	AT faunal change (no faunal increase)	DEF	AT	4
8090 / 8089	DEF	AT local marker benthic foram increase	DEF	AT	4
8600 / 8599	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
8780 / 8779	DEF	AT local marker foram increase	DEF	AT	5
9020 / 9019	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9230 / 9229	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	6
9231 / 9230	POS	AT condensed section	DEF	AT	6
9260 / 9259	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	6
9380 / 9379	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9470 / 9469	POS	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	5
9560 / 9559	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
9590 / 9589	DEF	AT local marker foram increase	DEF	AT	6
9710 / 9709	DEF	AT faunal change (no faunal increase)	DEF	AT	5
9770 / 9769	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
9890 / 9889	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
10080 / 10079	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	5
10380 / 10378	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
10500 / 10496	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	5
10800 / 10788	POS	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
10860 / 10845	DEF	AT local marker foram increase	DEF	AT	5

**GEOLOGIC** 02-FEB-2011

978

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 Date of Summary: 01-OCT-1998 First Sample Examined: 7490 Lease Number: G16661 Source of Paleo: OPERATOR **Borehole MD:** 14100 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: A002 **Borehole TVD:** 13125 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 608174082000 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 6114 - 14100 3927 Water Depth: Paleo ID: 001

Public Info Code: Y 26-SEP-2008 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description			<u>Ecozone</u>
11099 / 11066	POS	AT condensed section	DEF	ΑT	5
11100 / 11067	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	ΑT	5
11130 / 11094	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	ΑT	5
11220 / 11174	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
11700 / 11567	DEF	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	ΑT	4
11820 / 11657	DEF	AT faunal change (no faunal increase)	DEF	ΑT	5
12299 / 12003	DEF	AT local marker foram decrease	DEF	AT	5
12300 / 12004	DEF	IN Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	ΑT	5
12660 / 12252	DEF	AT reworked material	DEF	ΑT	5
12720 / 12294	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	ΑT	6
13080 / 12538	DEF	AT Upper Miocene (Tortonian) Planulina renzi	DEF	ΑT	5
13169 / 12597	DEF	AT reworked material	DEF	ΑT	5
13170 / 12598	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	ΑT	5
13830 / 13035	DEF	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	5
14100 / 13214	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 979

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 941 7340 Date of Summary: 15-DEC-1998 First Sample Examined: Lease Number: G16661 Source of Paleo: OPERATOR 14100 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 13125 **API Well Number: 608174082000** Drilling Operator: VASTAR RESOURCES INC. **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 6114 - 14100 3927 Water Depth: Public Info Code: Y 26-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, 9555=Dictyococcites productus, 11160=Discoaster preberggrenii, 12930=Discoaster icaris, 13920=Helicosphaera sp B,

hiatuses occur at 7400, 8630, and 9551

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7340 / 7340	DEF	AT first sample examined	DEF	AT
7341 / 7341	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa caribbeanica (flood)	DEF	AT
7400 / 7400	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
8630 / 8629	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9260 / 9259	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
9555 / 9554	DEF	AT Lower Pliocene (Zanclian) Discoaster quintatus	DEF	AT
10900 / 10882	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT
11160 / 11121	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii (variety?)	DEF	AT
12700 / 12280	POS	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
12930 / 12437	POS	IN Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
13380 / 12737	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
13620 / 12897	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
13920 / 13094	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
14100 / 13214	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

980

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MC 942 Date of Summary: 01-MAR-2001 First Sample Examined: 14740 Lease Number: G09895 Source of Paleo: OPERATOR **Borehole MD:** 20907 Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 18601 **API Well Number:** 608174082401 **Drilling Operator:** SHELL DEEPWATER DEVELOPMENT INC **Rkb Elevation:** 82 **Sample Range:** 14740 - 20890 3957 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 10-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 17920=first Melonis pompilioides

MD / TVD		Paleo Top Description		Eco	ozone
14740 / 14740	DEF	AT first sample examined	POS	AT	4
15040 / 15036	DEF	AT faunal change (no faunal increase)	DEF	AT	4
16090 / 15962	DEF	AT faunal change (no faunal increase)	POS	AT	4
16630 / 16297	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
16690 / 16330	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	4
16900 / 16443	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
18070 / 17072	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18310 / 17201	DEF	AT faunal change (no faunal increase)	POS	AT	4
18460 / 17281	DEF	AT faunal change (no faunal increase)	DEF	AT	4
18669 / 17391	DEF	AT foram flood	DEF	AT	4
18670 / 17392	DEF	IN Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	4
20890 / 18592	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 981

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Anna Diagla Mi CCC	D-1	First Commits Franciscolo	0000
Area Block: MI 565	Date of Summary: 19-NOV-1998	First Sample Examined:	6020
Lease Number: G18885	Source of Paleo: OPERATOR	Borehole MD:	8580
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	8241
API Well Number: 427034052000	<b>Drilling Operator:</b> COCKRELL OIL CORPORATION	Rkb Elevation:	113
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 6020 - 8570	Water Depth:	79
Public Info Code: Y 13-DEC-2008	Ecozone Ea MMS: Y	Paleo ID:	002

### Remark:

MD / TVD	Paleo Top Description	<u> </u>	<u>Ecozone</u>
6020 / 6019	DEF AT first sample examined	POS IN	3
6680 / 6662	POS AT Lower Miocene (Burdigalian) Robulus 54B	POS IN	3
6980 / 6934	DEF AT Lower Miocene (Burdigalian) Robulus chambersi	POS IN	3
7460 / 7334	DEF AT Lower Miocene (Burdigalian) Globigerina binaensis	POS IN	3
8570 / 8235	DEF AT last sample examined	DEF IN	3

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 982

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MI 633 Date of Summary: 22-JUN-1998 First Sample Examined:

Lease Number:G07202Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:13140Well Name:C002Paleo Done By:OPERATORBorehole TVD:11040

API Well Number: 427034051601 Drilling Operator: EOG RESOURCES INC Rkb Elevation: 106

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 82

Public Info Code: Y 13-JUN-2008 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD/TVD		Paleo Top Description		<u>Ecozone</u>
9323 / 8365	DEF	IN Lower Miocene (Burdigalian) Robulus chambersi	DEF AT	
10244 / 8987	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF AT	

GEOLOGIC

983

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MI 682 Date of Summary: 08-OCT-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G05171 **Borehole MD:** 11673 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 10533 **Drilling Operator:** HOUSTON EXPLORATION COMPANY **API Well Number:** 427034053400 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 126 Water Depth: Public Info Code: Y 16-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	<u>Paleo</u>	Top Description		<b>Ecozone</b>
5667 / 5667	DEF AT Middle	Miocene (Langhian) Amphistegina "B"	DEF	AT
6060 / 6060	DEF AT Middle	Miocene (Langhian) Robulus "L" / 43	DEF	AT
7283 / 7280	DEF AT Lower	Miocene (Burdigalian) Robulus 54B	DEF	AT
9030 / 8809	DEF AT Lower	Miocene (Burdigalian) Robulus chambersi	DEF	AT
9767 / 9278	DEF IN Lower	Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 984

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MI 683 Date of Summary: 08-AUG-2000 First Sample Examined:

Lease Number: G05171 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD: 12221

Well Name: 002 Paleo Done By: OPERATOR Borehole TVD: 9905

API Well Number: 427034052900 Drilling Operator: APACHE CORPORATION Rkb Elevation: 95
Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 130

Public Info Code: Y 16-DEC-2008 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

11220 / 9413 DEF IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A" DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 985

**Borehole MD:** 

0

12950

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MI 683 Date of Summary: 25-AUG-2000 First Sample Examined:

Lease Number: G05171 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name:002Paleo Done By: OPERATORBorehole TVD:10420

API Well Number: 427034052901 Drilling Operator: APACHE CORPORATION Rkb Elevation: 95

Paleo Report Num:1 of 1Sample Range:0 - 0Water Depth:130Public Info Code:Y 16-DEC-2008Ecozone Eq MMS:Paleo ID:001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

11218 / 9412 DEF AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A" DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 986

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MI 704	Date of Summary: 08-FEB-2000	First Sample Examined:	0
Lease Number: G10203	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11230
Well Name: B001	Paleo Done By: OPERATOR	Borehole TVD:	9685
API Well Number: 427034052600	Drilling Operator: HOUSTON EXPLORATION COMPANY	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	130
Public Info Code: Y 18-MAY-2009	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5349 / 5349	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
5997 / 5997	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
6448 / 6448	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
6978 / 6977	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT
9407 / 8729	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
10512 / 9339	DEF	IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

GEOLOGIC 02-FEB-2011

987

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MI 704 Date of Summary: 25-APR-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G10203 **Borehole MD:** 12260 Well Name: B001 Paleo Done By: OPERATOR **Borehole TVD:** 10246 **Drilling Operator:** HOUSTON EXPLORATION COMPANY **API Well Number:** 427034052603 **Rkb Elevation:** 101 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 130 Water Depth: Public Info Code: Y 18-MAY-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD		Paleo Top Description		<u>Ecozone</u>
5349 / 5349	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
5997 / 5997	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
6448 / 6448	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
6978 / 6977	DEF	IN Lower Miocene (Burdigalian) Robulus 54B	DEF	AT
9407 / 8714	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
10600 / 9331	DEF	IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 988

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MI 704	Date of Summary: 12-SEP-2000	First Sample Examined:	0
Lease Number: G10203	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13046
Well Name: B002	Paleo Done By: OPERATOR	Borehole TVD:	10752
API Well Number: 427034052800	<b>Drilling Operator: HOUSTON EXPLORATION COMPANY</b>	Rkb Elevation:	96
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	130
Public Info Code: Y 18-MAY-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5340 / 5340	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
5988 / 5988	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
6446 / 6446	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
9500 / 8740	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
10475 / 9347	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 989

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MO 822	Date of Summary: 02-FEB-1999	First Sample Examined:	0
Lease Number: G05056	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	21922
Well Name: 006	Paleo Done By: OPERATOR	Borehole TVD:	21817
API Well Number: 608154010601	<b>Drilling Operator: MOBIL OIL EXPLORATION &amp; PRODUC</b>	Rkb Elevation:	101
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	52
Public Info Code: Y 05-JAN-2009	Ecozone Eq MMS:	Paleo ID:	001

### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>	
19956 / 19851	DEF AT Jurassic Haynesville Formation	DEF AT 0	
20751 / 20646	DEF AT Jurassic Smackover Formation	DEF AT 0	
21566 / 21461	DEF AT Jurassic Norphlet Formation	DEF AT 0	

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 990

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Lease Number: G05057

Area Block: MO 823 Date of Summary: 18-MAY-1998

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A005 Paleo Done By: OPERATOR

API Well Number: 608154010500 Drilling Operator: MOBIL OIL EXPLORATION & PRODUC

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 14-MAY-2008 Ecozone Eq MMS:

First Sample Examined: 0
Borehole MD: 22415
Borehole TVD: 21755
Rkb Elevation: 100
Water Depth: 47

Paleo ID:

001

Ecozone

Remark: In=aeolian sand

MD / TVD
Paleo Top Description

22107 / 21468
DEF IN Jurassic Norphlet Formation

DEF AT 0

GEOLOGIC

991

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MO 904 Date of Summary: 31-JAN-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G05749 **Borehole MD:** 22978 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 22088 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608154011101 **Rkb Elevation:** 112 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 56 Public Info Code: Y 27-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description		Eco:	zone
13500 / 13499	DEF AT Lower Cretaceous Mooringsport Formation	DEF	AT	0
15700 / 15630	DEF AT Lower Cretaceous Hosston (Travis Peak) Formation	DEF	AT	0
17730 / 17431	POS AT Lower Cretaceous-Upper Jurassic Cotton Valley Group/Provincial Stage	DEF	AT	0
21340 / 20621	DEF AT Jurassic Haynesville Formation	DEF	AT	0
21710 / 20944	DEF AT Jurassic Smackover Formation	DEF	AT	0
22524 / 21668	DEF IN Jurassic Smackover Formation	DEF	AT	0
22809 / 21931	DEF AT pyrite	DEF	AT	
22832 / 21953	DEF AT Jurassic Norphlet Formation	DEF	AT	0
23002 /	DEF IN Jurassic Norphlet Formation	DEF	AT	0

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 992

**Borehole MD:** 

**Borehole TVD:** 

0

23906

22541

70

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MO 914 Date of Summary: 14-APR-1998 First Sample Examined:

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G07846

Well Name: 004 Paleo Done By: OPERATOR

Drilling Operator: MOBIL OIL EXPLORATION & PRODUC **API Well Number:** 608154010400 **Rkb Elevation:** 100

0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Water Depth: Public Info Code: Y 15-APR-2008 **Ecozone Eq MMS:** Paleo ID:

Remark:

MD / TVD **Paleo Top Description** Ecozone DEF IN Jurassic Haynesville Formation 0 21457 / 20453 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 993

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MO 917 Date of Summary: 18-OCT-1999 First Sample Examined:

Lease Number:G05754Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:2990

Well Name: 003 Paleo Done By: OPERATOR Borehole TVD: 2206

API Well Number: 608154010900 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA Rkb Elevation: 94

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 52

Public Info Code: Y 09-OCT-2008 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

1865 / 1708 POS IN Lower Miocene (Burdigalian) Robulus 54B DEF AT

GEOLOGIC

PAGE: 994

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MO 918 Date of Summary: 02-FEB-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G12114 **Borehole MD:** 22822 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 22820 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608154010700 **Rkb Elevation:** 95 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 66 Public Info Code: Y 06-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Paleo determined by correlation

MD / TVD	Paleo Top Description	Ecoz	zone
20638 / 20636	DEF AT Jurassic Haynesville Formation	DEF AT	0
21270 / 21268	DEF AT Jurassic Smackover Formation	DEF AT	0
22630 / 22628	DEF AT dolomite	DEF AT	0
22654 / 22652	DEF AT Jurassic Norphlet Formation	DEF AT	0
22858 /	DEF IN Jurassic Norphlet Formation	DEF AT	0

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 995

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MO 918	Date of Summary: 10-OCT-1999	First Sample Examined:	0
Lease Number: G12114	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	22872
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD:	22829
API Well Number: 608154010701	Drilling Operator: UNION OIL COMPANY OF CALIFORNIA	Rkb Elevation:	95
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	66
Public Info Code: Y 09-OCT-2009	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD	Paleo Top Description	Ecozone
20638 / 20636	DEF AT Jurassic Haynesville Formation	DEF AT 0
21275 / 21268	DEF AT Jurassic Smackover Formation	DEF AT 0
22722 / 22681	DEF AT Jurassic Norphlet Formation	DEF AT 0

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE: 996

0

15402

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MO 991 Date of Summary: 23-NOV-1998 First Sample Examined:

Lease Number: G15403 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: 001 Paleo Done By: OPERATOR Borehole TVD: 15400

API Well Number: 608154010001 Drilling Operator: CHEVRON USA INC Rkb Elevation: 88

Paleo Report Num:1 of 1Sample Range:0 - 0Water Depth:82Public Info Code:Y 07-MAR-2008Ecozone Eq MMS:Paleo ID:001

Remark: In=sand

MD / TVDPaleo Top DescriptionEcozone15038 / 15036DEF IN Lower Cretaceous James FormationDEF AT 0

GEOLOGIC 02-FEB-2011 PAGE: 997

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MO 991	Date of Summary: 27-JAN-2000	First Sample Examined:	0
Lease Number: G15403	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	16850
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	15420
API Well Number: 608154011300	Drilling Operator: CHEVRON USA INC	Rkb Elevation:	135
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	83
Public Info Code: Y 19-DEC-2009	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
14943 / 13797	DEF	AT Lower Cretaceous Mooringsport Formation	DEF	AT	0
15332 / 14115	DEF	AT Lower Cretaceous Ferry Lake Anhydrite	DEF	AT	0
15658 / 14376	DEF	AT Lower Cretaceous Rodessa Formation	DEF	AT	0
16222 / 14849	DEF	AT Lower Cretaceous Punta Gorda Formation	DEF	AT	0
16710 / 15291	DEF	IN Lower Cretaceous Punta Gorda Formation	DEF	AT	0

GEOLOGIC 02-FEB-2011

998

PAGE:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MO 992 Date of Summary: 21-JUL-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15404 **Borehole MD:** 15329 Paleo Done By: OPERATOR Well Name: A001 **Borehole TVD:** 15328 **Drilling Operator: CHEVRON USA INC API Well Number:** 608154011500 **Rkb Elevation:** 103 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 89 Water Depth: Public Info Code: Y 19-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Eco</u>	<u>ozone</u>
12788 / 12787	DEF	AT Lower Cretaceous James Formation	DEF	AT	0
13758 / 13757	DEF	AT Lower Cretaceous Mooringsport Formation	DEF	AT	0
14082 / 14081	DEF	AT Lower Cretaceous Ferry Lake Anhydrite	DEF	AT	0
14352 / 14351	DEF	AT Lower Cretaceous Rodessa Formation	DEF	AT	0
15272 / 15271	DEF	IN Lower Cretaceous James Formation	DEF	AT	0

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 999

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 7	Date of Summary: 07-DEC-2000	First Sample Examined:	0
Lease Number: G21700	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	8100
Well Name: B001	Paleo Done By: OPERATOR	Borehole TVD:	8100
API Well Number: 177254069100	Drilling Operator: APACHE CORPORATION	Rkb Elevation:	88
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	36
Public Info Code: Y 03-OCT-2010	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

<u>MD / TVD</u>		Paleo Top Description		<u>Ecozone</u>
4330 / 4330	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
4700 / 4700	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
7713 / 7713	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1000

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 61 Date of Summary: 22-JAN-2002 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16493 **Borehole MD:** 7275 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 7275 **Drilling Operator:** POGO PRODUCING COMPANY **API Well Number:** 177254069800 **Rkb Elevation:** 77 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 92 Water Depth:

Public Info Code: Y 12-DEC-2010 Ecozone Eq MMS:

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5315 / 5315	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
6950 / 6949	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 61	Date of Summary: 22-JAN-2002	First Sample Examined:	0
Lease Number: G21702	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	7988
Well Name: A004	Paleo Done By: OPERATOR	Borehole TVD:	7486
API Well Number: 177254070000	Drilling Operator: POGO PRODUCING COMPANY	Rkb Elevation:	78
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	92
Public Info Code: Y 31-DEC-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u> MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
5683 / 5385	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
6792 / 6394	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT
7612 / 7140	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 86 Date of Summary: 30-NOV-2000 First Sample Examined: 2000 Lease Number: G19852 Source of Paleo: OPERATOR **Borehole MD:** 10500 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10494 **Drilling Operator: DEVON LOUISIANA CORPORATION API Well Number:** 177254069300 **Rkb Elevation:** 85 Paleo Report Num: 1 of 1 **Sample Range:** 2000 - 10500 70 Water Depth: Public Info Code: Y 25-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
2000 / 2000	DEF	AT first sample examined	DEF AT	Γ 1
3320 / 3320	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT	Г 2
3950 / 3950	DEF	AT	DEF AT	Г 3
4100 / 4100	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT	Г 3
5990 / 5990	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF AT	Г 3
6230 / 6230	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF AT	Г 4
7970 / 7970	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF AT	Г 4
10460 / 10454	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF AT	Г 4
10500 / 10494	DEF	AT last sample examined	DEF AT	Г 4

GEOLOGIC

02-FEB-2011 PAGE: 1003

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 91	Date of Summary: 08-MAY-1998	First Sample Examined:	0
Lease Number: G14576	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9248
Well Name: B002	Paleo Done By: OPERATOR	Borehole TVD:	8627
API Well Number: 177254065200	Drilling Operator: PETSEC ENERGY INC	Rkb Elevation:	109
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	37
Public Info Code: Y 04-FEB-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2248 / 2241	DEF AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT
3357 / 3203	POS AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
4878 / 4442	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
5409 / 4897	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT
8124 / 7504	DEF AT Upper Miocene (Tortonian) Cibicides carstensi	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1004

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 91	Date of Summary: 02-JUL-1998	First Sample Examined:	0
Lease Number: G14576	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	8805
Well Name: B003	Paleo Done By: OPERATOR	Borehole TVD:	5730
API Well Number: 177254065600	Drilling Operator: PETSEC ENERGY INC	Rkb Elevation:	80
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	37
Public Info Code: Y 14-MAR-2008	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

_	MD / TVD		Paleo Top Description		<u>Ecozone</u>
	2285 / 2246	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
	3871 / 3239	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT
	6285 / 4437	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
	7102 / 4877	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1005

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 95	Date of Summary: 29-MAR-2005	First Sample Examined:	4530
Lease Number: G23965	Source of Paleo: OPERATOR	Borehole MD:	12312
Well Name: 002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	11500
API Well Number: 177254080500	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	97
Paleo Report Num: 1 of 2	Sample Range: 4530 - 12312	Water Depth:	60
Public Info Code: Y 31-JUL-2008	Ecozone Ea MMS: Y	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
4530 / 4530	DEF	AT first sample examined	DEF	AT	2
4531 / 4531	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	2
5580 / 5580	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	2
6870 / 6870	DEF	AT	DEF	AT	3
6930 / 6930	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	3
6990 / 6990	DEF	AT	DEF	AT	4
10080 / 9773	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
10590 / 10165	DEF	AT	DEF	AT	5
10980 / 10465	DEF	AT	DEF	AT	4
11970 / 11227	DEF	AT	DEF	AT	5
12312 / 11500	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 1006

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 95 Date of Summary: 29-MAR-2005 First Sample Examined: 4530 Lease Number: G23965 Source of Paleo: OPERATOR **Borehole MD:** 12312 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 11500 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177254080500 **Rkb Elevation:** 97 Paleo Report Num: 2 of 2 **Sample Range:** 4530 - 12312 60 Water Depth: Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4530 / 4530	DEF	AT first sample examined	DEF	AT
4770 / 4770	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
6000 / 6000	POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
6900 / 6900	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
10020 / 9727	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
12312 / 11500	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1007

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 108 13160 Date of Summary: 12-MAR-2001 First Sample Examined: Lease Number: G04832 Source of Paleo: OPERATOR **Borehole MD:** 15510 Well Name: A006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14177 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177254069203 **Rkb Elevation:** 131 Paleo Report Num: 1 of 2 **Sample Range:** 13160 - 15510 70 Water Depth: Public Info Code: Y 08-JAN-2011 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco:	zone
13160 / 12318	DEF AT	first sample examined	DEF	AT	5
13340 / 12473	DEF IN	Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
14060 / 13068	DEF AT	Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	6
14330 / 13289	DEF AT	Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
14390 / 13338	DEF AT	Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
14420 / 13363	POS AT	Middle Miocene (Serravallian) Cibicides opima	DEF	AT	6
14660 / 13559	DEF AT		DEF	AT	5
15110 / 13919	DEF AT		DEF	AT	6
15290 / 14047	DEF AT	Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
15510 / 14177	DEF AT	last sample examined	DEF	AT	6

GEOLOGIC

02-FEB-2011 PAGE: 1008

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 108 First Sample Examined: 13160 Date of Summary: 12-MAR-2001 Lease Number: G04832 Source of Paleo: OPERATOR 15510 **Borehole MD:** Well Name: A006 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14177 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number: 177254069203 Rkb Elevation:** 131 Paleo Report Num: 2 of 2 **Sample Range:** 13160 - 15510 70 Water Depth: Public Info Code: Y 08-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13160 / 12318	DEF AT	first sample examined	DEF	AT
14030 / 13043	DEF AT	Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
14330 / 13289	DEF AT	Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
14420 / 13363	DEF AT	Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
15020 / 13851	POS AT	Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
15510 / 14177	DEF AT	last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1009

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 162 Date of Summary: 01-JUN-1998 7230 First Sample Examined: Lease Number: G13968 Source of Paleo: OPERATOR 12690 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 11400 Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number:** 177244081700 **Rkb Elevation:** 82 **Sample Range:** 7230 - 12690 Paleo Report Num: 1 of 1 Water Depth: 91 Public Info Code: Y 11-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ecozone</u>
7230 / 7201	DEF	AT first sample examined	POS	AT	2
7500 / 7455	DEF	AT pyrite	DEF	AT	2
7529 / 7481	DEF	AT Eggerella sp. (local marker)	DEF	AT	2
7530 / 7482	DEF	AT Upper Miocene (Tortonian) Cibicides inflata	DEF	AT	2
8100 / 7962	DEF	AT Eggerella 3 (local marker)	POS	AT	3
8520 / 8275	DEF	AT	POS	AT	2
8940 / 8584	DEF	AT pyrite	POS	AT	2
11190 / 10305	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	2
11460 / 10498	DEF	AT Eggerella sp. (local marker)	DEF	AT	3
11520 / 10542	DEF	AT Bathysiphon fauna	DEF	AT	3
11550 / 10565	DEF	AT Upper Miocene (Tortonian) Discamminoides tobleri	DEF	AT	3
11729 / 10699	DEF	AT pyrite	DEF	AT	3
11730 / 10700	DEF	AT Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	AT	3
11848 / 10788	POS	AT unconformity	DEF	AT	3
11849 / 10789	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	AT	3
11850 / 10789	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	3
11880 / 10812	DEF	AT local marker benthic foram increase	DEF	AT	3
11910 / 10834	DEF	AT faunal change (no faunal increase)	DEF	AT	4
11940 / 10856	DEF	AT pyrite	DEF	AT	4
12000 / 10901	DEF	AT local marker foram increase	DEF	AT	4
12090 / 10968	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	3
12330 / 11143	DEF	AT local marker planktic foram increase	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 1010

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 162 Date of Summary: 01-JUN-1998 First Sample Examined: 7230 Lease Number: G13968 Source of Paleo: OPERATOR **Borehole MD:** 12690 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: A001 **Borehole TVD:** 11400 Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number:** 177244081700 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 7230 - 12690 91 Water Depth: Public Info Code: Y 11-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
12390 / 11187	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	AT	5
12510 / 11273	DEF	AT local marker benthic foram increase	DEF	AT	5
12540 / 11294	DEF	AT local marker foram increase	DEF	AT	5
12660 / 11379	DEF	AT local marker planktic foram increase	DEF	AT	5
12690 / 11400	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE: 1011

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 162 Date of Summary: 22-JUL-1998 First Sample Examined: 6960 Lease Number: G13968 Source of Paleo: OPERATOR 11180 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10285 **Drilling Operator:** ANADARKO E&P COMPANY LP **API Well Number:** 177244082100 **Rkb Elevation:** 82 Paleo Report Num: 1 of 2 **Sample Range:** 6960 - 11160 91 Water Depth: Public Info Code: Y 20-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
6960 / 6618	DEF	AT first sample examined	DEF	AT	3
6961 / 6619	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	3
6962 / 6620	DEF	IN Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	AT	3
9360 / 8673	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
9390 / 8699	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
10890 / 10027	DEF	AT local marker foram increase	DEF	AT	4
11130 / 10240	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	4
11160 / 10267	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 1012

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 162 Date of Summary: 22-JUL-1998 First Sample Examined: 7020 Lease Number: G13968 Source of Paleo: OPERATOR **Borehole MD:** 11180 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10285 **Drilling Operator:** ANADARKO E&P COMPANY LP **API Well Number:** 177244082100 **Rkb Elevation:** 82 Paleo Report Num: 2 of 2 **Sample Range:** 7020 - 11160 91 Water Depth: Public Info Code: Y 20-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7020 / 6669	DEF	AT first sample examined	DEF	AT
7260 / 6873	DEF	IN Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
9390 / 8699	DEF	AT local marker floral increase	DEF	AT
9480 / 8777	POS	AT Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT
9540 / 8830	DEF	AT local marker floral decrease	DEF	AT
9810 / 9067	DEF	AT local marker floral increase	DEF	AT
9870 / 9120	DEF	AT local marker floral decrease	DEF	AT
10890 / 10027	DEF	AT local marker floral increase	DEF	AT
10950 / 10080	DEF	AT local marker floral decrease	DEF	AT
11070 / 10187	DEF	AT local marker floral increase	DEF	AT
11160 / 10267	DEF	AT last sample examined	DEF	AT

MD / TVD

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 1013

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 221 11980 Date of Summary: 15-MAR-2006 First Sample Examined: Lease Number: G26163 Source of Paleo: OPERATOR 21921 **Borehole MD:** Well Name: 001 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 21777 **API Well Number: 177244092400 Drilling Operator: CHEVRON USA INC Rkb Elevation:** 110 Sample Range: 11980 - 21921 Paleo Report Num: 1 of 1 Water Depth: 245 Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Calcareous nannofossil report, 15270= Santonian Nannoconus farinacciae LAD and Nannoconus regularis LAD, nannospecies abundance and diversity

chart available, see report for details

Pales Ton Description

MD/IVD		Paleo Top Description		<u>Ecozone</u>
11980 /11979	DEF	AT first sample examined	DEF	AT
11981 /11980	DEF	IN Upper (Late) Cretaceous	DEF	AT
15270 / 15198	DEF	IN Upper Cretaceous Santonian Stage	DEF	AT
15330 / 15257	DEF	AT local marker floral decrease	DEF	AT
15930 / 15840	POS	AT Upper Cretaceous (Santonian) Eprolithus floralis	DEF	AT
16170 / 16073	DEF	AT local marker floral decrease	DEF	AT
18509 / 18376	DEF	AT Lower Cretaceous (Aptian) Nannoconus kamptneri	DEF	AT
18510 / 18377	DEF	AT Lower Cretaceous (Aptian) Nannoconus steinmanni	DEF	AT
18570 / 18437	DEF	AT local marker floral decrease	DEF	AT
19200 / 19066	DEF	AT local marker floral decrease	DEF	AT
19320 / 19186	DEF	AT Lower Cretaceous (Valanginian) Rucinolithus wisei	DEF	AT
19440 /19306	POS	AT Lower Cretaceous (Berriasian) Polycostella senaria	DEF	AT
19560 / 19426	DEF	AT local marker floral decrease	DEF	AT
20100 / 19966	DEF	IN Lower Cretaceous (Barremian) Nannoconus colomii	DEF	AT
20220 / 20085	DEF	AT Upper Jurassic (Tithonian) Hexalithus noelae	DEF	AT
20340 / 20205	DEF	AT local marker floral decrease	DEF	AT
20480 / 20345	POS	AT local marker floral increase	DEF	AT
21900 / 21756	DEF	IN Lower Cretaceous-Upper Jurassic Cotton Valley Group/Provincial Stage	DEF	AT
21921 /21777	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1014

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 223 Date of Summary: 25-MAY-1998 First Sample Examined: 6690 Lease Number: G12096 Source of Paleo: OPERATOR 10547 **Borehole MD:** Well Name: A007 Paleo Done By: PALEO CONTROL INC. **Borehole TVD:** 9884 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number: 177244081800 Rkb Elevation:** 134 **Sample Range:** 3600 - 10547 Paleo Report Num: 1 of 1 Water Depth: 269 Public Info Code: Y 02-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD/	TVD		Paleo Top Description		<u>E</u>	cozone
6690 /	6456	DEF	AT first sample examined	DEF	AT	3
6691 /	6457	DEF	IN Upper (Late) Miocene	DEF	AT	3
7050 /	6776	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	ΑT	3
7140 /	6855	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	ΑT	3
7230 /	6935	DEF	AT	DEF	AT	4
9001 /	8505	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
10439 /	9785	POS	AT unconformity	DEF	IN	4
10440 /	9786	DEF	AT local marker foram increase	DEF	IN	4
10547 /	9884	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC

02-FEB-2011 PAGE: 1015

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 223	Date of Summary: 14-APR-2000	First Sample Examined:	0
Lease Number: G12096	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15623
Well Name: A008	Paleo Done By: OPERATOR	Borehole TVD:	10224
API Well Number: 177244082300	Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN	Rkb Elevation:	134
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	265
Public Info Code: Y 06-AUG-2008	Ecozone Eg MMS:	Paleo ID:	001

### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9865 / 6669	DEF AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF AT
12100 / 8066	DEF AT Upper Miocene (Tortonian) Uvigerina 3	DEF AT
14403 / 9502	DEF AT Middle Miocene (Serravallian) Bigenerina humblei	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1016

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 223	Date of Summary: 12-MAR-2000	First Sample Examined:	0
Lease Number: G12096	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10508
Well Name: A010	Paleo Done By: OPERATOR	Borehole TVD:	8805
<b>API Well Number:</b> 177244085400	Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN	Rkb Elevation:	136
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	266
Public Info Code: Y 12-JAN-2010	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6655 / 5335	POS AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
8320 / 6661	DEF AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF AT
9200 / 7500	DEF AT Upper Miocene (Tortonian) Cibicides carstensi	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1017

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 223 Date of Summary: 26-OCT-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15387 **Borehole MD:** 10330 Well Name: A009 Paleo Done By: OPERATOR **Borehole TVD:** 9012 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177244082500 **Rkb Elevation:** 134 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 269 Water Depth: Public Info Code: Y 13-OCT-2008 **Ecozone Eq MMS:** Paleo ID: 001

### Remark:

_	MD / TVD		Paleo Top Description		<u>Ecozone</u>
	6495 / 5744	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
	7784 / 6833	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT
	8563 / 7505	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT
	9240 / 8086	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1018

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 226 4200 Date of Summary: 01-JAN-1999 First Sample Examined: Lease Number: G06825 Source of Paleo: OPERATOR 14949 **Borehole MD:** Well Name: A004 Paleo Done By: PALEO SOURCE **Borehole TVD:** 9356 **API Well Number: 177244082700 Drilling Operator: NIPPON OIL EXPLORATION GULF Rkb Elevation:** 132 172 Paleo Report Num: 1 of 1 **Sample Range:** 4200 - 14949 Water Depth: Public Info Code: Y 20-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, 8730=below strong scour surface, 11520=upwelling with cold-water fauna, 12840=rare Gyroidina

scalata, species abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		Eco	zone
4200 /	3502	DEF	AT first sample examined	POS	IN	3
4350 /	3578	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	3
5880 /	4353	DEF	IN Upper Miocene (Messinian) Textularia tatumi	DEF	IN	3
7320 /	5114	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	4
7980 /	5475	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	4
8729 /	5900	POS	AT unconformity	DEF	AT	5
8730 /	5901	DEF	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	5
10170 /	6728	DEF	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	5
10980 /	7135	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
11520 /	7415	DEF	AT local marker foram increase	DEF	AT	5
11730 /	7525	DEF	IN Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
12840 /	8101	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
13020 /	8198	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	5
13080 /	8230	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT	5
13530 /	8490	DEF	AT transported shelf fauna	DEF	AT	5
14250 /	8927	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
14610 /	9144	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
14949 /	9357	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 1019

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 226 Date of Summary: 12-JUL-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G06825 **Borehole MD:** 13195 Well Name: A006 Paleo Done By: OPERATOR **Borehole TVD:** 9500 Drilling Operator: NIPPON OIL EXPLORATION U S A **API Well Number:** 177244083700 **Rkb Elevation:** 132 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 172 Water Depth: Public Info Code: Y 19-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

### Remark:

<u>MD/</u>	TVD		Paleo Top Description		<u>Ecozone</u>
6600 /	5246	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
9906 /	7346	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT
10616 /	7800	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT
12059 /	8792	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT
12599 /	9122	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1020

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 226 Date of Summary: 12-FEB-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16508 **Borehole MD:** 10235 Well Name: A003 Paleo Done By: OPERATOR **Borehole TVD:** 9400 Drilling Operator: NIPPON OIL EXPLORATION U S A **API Well Number:** 177244082600 **Rkb Elevation:** 138 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 172 Water Depth: Public Info Code: Y 28-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7385 / 6882	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT
8258 / 7649	DEF AT Upper Miocene (Tortonian) Cibicides carstensi	DEF AT
9480 / 8721	DEF AT Upper Miocene (Tortonian) Uvigerina 3	DEF AT
9904 / 9100	DEF IN Middle Miocene (Serravallian) Textularia "W"	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1021

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 226 Date of Summary: 09-APR-1999 13010 First Sample Examined: Source of Paleo: OPERATOR Lease Number: G16508 **Borehole MD:** 16002 9728 Well Name: A005 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: NIPPON OIL EXPLORATION U S A **API Well Number:** 177244083100 **Rkb Elevation:** 132 Paleo Report Num: 1 of 1 **Sample Range:** 13010 - 16002 172 Water Depth: Public Info Code: Y 22-MAY-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD	Paleo Top Description		<u> </u>	<u>Ecozone</u>
13010 / 7844	DEF AT first sample examined	EF	AT	4
13700 / 8270	DEF AT	EF	AT	5
13970 / 8421	POS AT Upper Miocene (Tortonian) Textularia "L"	EF	AT	5
14720 / 8845	POS AT Upper Miocene (Tortonian) Cibicides carstensi	EF	AT	5
14810 / 8905	DEF AT	OS	AT	6
15170 / 9146	DEF AT Upper Miocene (Tortonian) Uvigerina 3	EF	AT	6
16002 / 9728	DEF AT last sample examined	)EF	ΑT	6

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1022

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:MP242Date of Summary:14-JUL-2000First Sample Examined:0Lease Number:G19864Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:10669

Well Name: A002 Paleo Done By: OPERATOR Borehole TVD: 4285

API Well Number: 177244086000 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN Rkb Elevation: 100
Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 196

Public Info Code: Y 26-JUN-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
1862 / 1680	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
4859 / 2654	DEF AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1023

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 250	Date of Summary: 14-MAY-1999	First Sample Examined:	0
Lease Number: G15387	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11915
Well Name: B002	Paleo Done By: OPERATOR	Borehole TVD:	10117
API Well Number: 177244083201	Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGE	MEN Rkb Elevation:	126
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	319
Public Info Code: Y 16-MAY-2009	9 Ecozone Eq MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4179 / 3738	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT
8237 / 7108	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
8693 / 7481	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT
10917 / 9311	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1024

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 260 Date of Summary: 27-MAY-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G07828 **Borehole MD:** 12400 Paleo Done By: OPERATOR Well Name: 001 **Borehole TVD:** 12398 **Drilling Operator: SOCO OFFSHORE INC API Well Number:** 177244081400 **Rkb Elevation:** 96 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 315 Water Depth: **Ecozone Eq MMS:** Public Info Code: Y 02-MAY-2008 Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8206 / 8205	DEF	AT limestone	DEF	AT
8896 / 8895	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT
9806 / 9805	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT
11546 / 11545	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1025

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 263 9720 Date of Summary: 01-APR-2003 First Sample Examined: Lease Number: G23992 Source of Paleo: OPERATOR 13355 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO SOURCE **Borehole TVD:** 13200 **API Well Number: 177244089600 Drilling Operator:** W & T OFFSHORE INC **Rkb Elevation:** 96 Water Depth: Paleo Report Num: 1 of 1 **Sample Range:** 9720 - 13355 280 Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, 11640=multiple scours and redeposited sediment dominate samples from this to 11730, with some chance that Discoaster sanmiguelensis is reworked or redeposited, 11730 consists of a middle bathyal upwelling fauna (pre-lowstand), foram species

abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
9720 / 9713	DEF	AT first sample examined	DEF	IN	4
9750 / 9742	DEF	IN Upper Miocene (Tortonian) Discoaster bollii	DEF	IN	4
9780 / 9771	DEF	AT reworked material	DEF	IN	4
9840 / 9829	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	IN	4
9900 / 9886	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	IN	4
10350 / 10309	DEF	AT	DEF	AT	5
10680 / 10617	DEF	AT local marker foram decrease	DEF	AT	5
11310 / 11215	DEF	IN Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	IN	4
11640 / 11533	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	IN	4
11730 / 11619	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
13280 / 13127	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	5
13355 / 13201	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 1026

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 264 Date of Summary: 01-AUG-1999 4560 First Sample Examined: Lease Number: G14585 Source of Paleo: OPERATOR 13500 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13484 **API Well Number:** 177244084200 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 111 Paleo Report Num: 1 of 1 **Sample Range:** 4545 - 13500 238 Water Depth: Public Info Code: Y 29-OCT-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Ecc	<u>ozone</u>
4560 / 4560	DEF	AT first sample examined	DEF	AT	2
4561 / 4561	DEF	IN Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	2
4619 / 4619	DEF	AT pyrite	DEF	AT	2
4621 / 4621	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	2
4800 / 4800	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	2
4890 / 4890	DEF	AT local marker foram increase	DEF	AT	2
4920 / 4920	DEF	AT pyrite	DEF	AT	2
4980 / 4980	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	2
5040 / 5040	DEF	AT pyrite	DEF	AT	2
5130 / 5130	DEF	AT	POS	AT	2
5190 / 5190	DEF	AT Upper Miocene (Messinian) Textularia "X"	POS	AT	2
5310 / 5310	DEF	AT pyrite	POS	AT	2
5519 / 5519	DEF	AT sand	DEF	AT	3
5520 / 5520	POS	AT Miocene	DEF	AT	3
5521 / 5521	DEF	AT local marker foram increase	DEF	AT	3
5580 / 5580	DEF	AT local marker foram increase	DEF	AT	3
5640 / 5640	DEF	AT	DEF	IN	2
5700 / 5700	DEF	AT Upper Miocene (Tortonian) Globorotalia acostaensis (coiling change right/left)	DEF	IN	2
5940 / 5940	DEF	AT pyrite	DEF	IN	2
6000 / 6000	DEF	AT	POS	AT	2
6180 / 6180	DEF	AT	POS	IN	1
6300 / 6300	DEF	AT pyrite	POS	IN	1

**GEOLOGIC** 02-FEB-2011 PAGE: 1027

Water Depth:

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 264 Date of Summary: 01-AUG-1999 First Sample Examined: 4560 Lease Number: G14585 Source of Paleo: OPERATOR **Borehole MD:** 13500 Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13484 Drilling Operator: VASTAR RESOURCES INC. **API Well Number: 177244084200 Rkb Elevation:** 111 238

**Sample Range:** 4545 - 13500 Paleo Report Num: 1 of 1

Public Info Code: Y 29-OCT-2009 **Ecozone Eq MMS:** Y

6330 / 6330 DEF AT DEF IN	2 2
	2
6360 / 6360 DEF AT Arenaceous fauna (local marker) DEF IN	_
6480 / 6480 DEF AT DEF IN	3
6510 / 6510 DEF AT Arenaceous fauna (local marker) DEF IN	3
6660 / 6660 DEF AT POS AT	3
7110 / 7110 DEF AT Arenaceous fauna (local marker) DEF AT	4
7111 / 7111 DEF IN Upper Miocene (Tortonian) Discorbis 12 DEF AT	4
7170 / 7170 DEF AT Eggerella sp. (local marker) DEF AT	4
7230 / 7230 DEF AT Upper Miocene (Tortonian) Cibicides crebbsi DEF AT	4
7260 / 7260 DEF AT pyrite DEF AT	4
7320 / 7320 DEF AT POS AT	4
7350 / 7350 DEF AT pyrite POS AT	4
7410 / 7410 DEF AT Eggerella sp. (local marker) DEF AT	3
7470 / 7469 DEF AT pyrite DEF AT	3
7590 / 7589 DEF AT pyrite DEF IN	3
7680 / 7679 DEF AT Eggerella sp. (local marker) DEF IN	3
7770 / 7769 DEF AT cement POS IN	3
7860 / 7859 DEF AT Eggerella sp. (local marker) DEF AT	3
8160 / 8159 DEF AT DEF IN	3
8220 / 8219 DEF AT limestone DEF IN	3
8400 / 8398 DEF AT Eggerella sp. (local marker) DEF IN	3
8490 / 8488 DEF AT pyrite DEF IN	3
8520 / 8518 DEF AT DEF AT	4
8550 / 8548 DEF AT Eggerella sp. (local marker) DEF AT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 1028

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 264 Date of Summary: 01-AUG-1999 First Sample Examined: 4560 Lease Number: G14585 Source of Paleo: OPERATOR **Borehole MD:** 13500

> Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13484 Drilling Operator: VASTAR RESOURCES INC. **API Well Number: 177244084200 Rkb Elevation:** 111 238

**Sample Range:** 4545 - 13500 Paleo Report Num: 1 of 1 Water Depth: Paleo ID:

Public Info Code: Y 29-OCT-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
8670 / 8668	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
8729 / 8727	DEF	AT pyrite	DEF	AT	5
8730 / 8728	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
8820 / 8818	DEF	AT local marker planktic foram increase	DEF	AT	4
8850 / 8848	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
8851 / 8849	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
8970 / 8968	DEF	AT local marker planktic foram increase	DEF	AT	4
8999 / 8997	DEF	AT pyrite	DEF	AT	4
9000 / 8998	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
9119 / 9117	DEF	AT pyrite	DEF	AT	4
9120 / 9118	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9180 / 9178	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	4
9300 / 9298	DEF	AT pyrite	DEF	AT	5
9450 / 9448	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
9570 / 9568	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
9630 / 9628	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
9720 / 9718	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
9840 / 9838	DEF	AT pyrite	DEF	AT	5
9870 / 9868	DEF	AT local marker foram increase	DEF	AT	5
9960 / 9958	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
10380 / 10378	DEF	AT	DEF	AT	4
10500 / 10498	DEF	AT	DEF	AT	5
10800 / 10798	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
10860 / 10858	DEF	AT	DEF	AT	4

GEOLOGIC 02-FEB-2011

Paleo ID:

PAGE: 1029

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 264 Date of Summary: 01-AUG-1999 First Sample Examined: 4560 Lease Number: G14585 Source of Paleo: OPERATOR **Borehole MD:** 13500 Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13484 Drilling Operator: VASTAR RESOURCES INC. **API Well Number: 177244084200 Rkb Elevation:** 111 **Sample Range:** 4545 - 13500 Paleo Report Num: 1 of 1 238 Water Depth:

Public Info Code: Y 29-OCT-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	<u>ozone</u>
11010 / 11008	DEF	AT cement	DEF	AT	4
11070 /11068	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
11130 / 11128	DEF	AT local marker planktic foram increase	DEF	AT	4
11190 / 11188	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
11220 / 11218	DEF	AT local marker planktic foram increase	DEF	AT	5
11520 / 11517	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	AT	5
11640 / 11637	POS	AT ash	DEF	AT	5
11790 / 11787	DEF	AT	DEF	AT	4
12840 / 12833	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
12870 / 12863	DEF	AT local marker foram increase	DEF	AT	5
12990 / 12982	DEF	AT local marker foram increase	DEF	AT	5
13020 / 13012	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
13050 / 13041	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	AT	5
13260 / 13248	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
13320 / 13307	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
13380 / 13366	POS	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	5
13470 / 13454	DEF	AT local marker planktic foram increase	DEF	AT	5
13500 / 13484	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 1030

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 264 9000 Date of Summary: 01-JAN-2000 First Sample Examined: Lease Number: G14585 Source of Paleo: OPERATOR 13903 **Borehole MD:** Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13201 **API Well Number:** 177244084800 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 106 **Sample Range:** 9000 - 13890 238 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 03-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
9000 / 8983	DEF	AT first sample examined	DEF	IN	3
9001 / 8984	DEF	AT pyrite	DEF	IN	3
9120 / 9098	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	3
9180 / 9155	DEF	AT Upper Miocene (Tortonian) Textularia "G"	DEF	IN	3
9240 / 9211	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9300 / 9266	DEF	AT pyrite	DEF	AT	4
9359 / 9321	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	4
9360 / 9322	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	4
9510 / 9458	DEF	AT pyrite	DEF	AT	4
9540 / 9485	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9720 / 9644	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9749 / 9670	DEF	AT pyrite	DEF	AT	4
9750 / 9671	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
9870 / 9773	DEF	AT local marker foram increase	DEF	AT	4
9899 / 9798	DEF	AT pyrite	DEF	IN	4
9900 / 9799	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
9960 / 9849	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
10020 / 9900	DEF	AT local marker deep water fauna	DEF	AT	5
10080 / 9950	POS	AT local marker (general)	POS	AT	5
10440 / 10253	DEF	AT drilling material	POS	AT	5
10680 / 10456	DEF	AT	POS	IN	3
10980 / 10713	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	POS	IN	3

GEOLOGIC 02-FEB-2011

PAGE: 1031

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:MP264Date of Summary:01-JAN-2000First Sample Examined:9000Lease Number:G14585Source of Paleo:OPERATORBorehole MD:13903Well Name:A002Paleo Done By:APPLIED BIOSTRATIGRAPHIXBorehole TVD:13201API Well Number:177244084800Drilling Operator:VASTAR RESOURCES INC.Rkb Elevation:106

API Well Number: 177244084800 Drilling Operator: VASTAR RESOURCES INC. Rkb Elevation: 106
Paleo Report Num: 1 of 1 Sample Range: 9000 - 13890 Water Depth: 238

Public Info Code: Y 03-FEB-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ec	<u>ozone</u>
11100 / 10816	DEF	AT reworked material	POS	IN	3
11160 / 10867	DEF	AT	DEF	AT	3
11220 / 10918	POS	AT Middle Miocene (Serravallian) Robulus 5 / 55	DEF	AT	3
11260 / 10953	DEF	AT	POS	AT	4
11400 / 11073	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	POS	AT	5
11430 / 11099	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	POS	AT	5
11460 / 11125	DEF	AT	POS	AT	4
12660 / 12154	DEF	IN Middle Miocene (Serravallian) Bigenerina humblei	DEF	IN	3
13050 / 12482	DEF	AT drilling material	DEF	IN	3
13080 / 12507	DEF	AT	DEF	AT	3
13290 / 12684	DEF	AT	POS	AT	4
13410 / 12785	DEF	AT local marker foram increase	DEF	AT	5
13470 / 12836	DEF	AT local marker planktic foram increase	DEF	AT	5
13499 / 12860	DEF	AT pyrite	DEF	AT	5
13500 / 12861	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
13620 / 12962	DEF	AT local marker (general)	DEF	AT	5
13710 / 13038	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
13799 / 13113	DEF	AT pyrite	DEF	AT	5
13800 / 13114	DEF	AT foram flood	DEF	AT	5
13801 / 13114	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
13860 / 13164	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	5
13890 / 13189	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1032

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 4694 Date of Summary: 01-MAY-2000 First Sample Examined: Lease Number: G15395 Source of Paleo: OPERATOR 12046 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 12039 **API Well Number:** 177244085700 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 101 **Sample Range:** 4694 - 12044 Paleo Report Num: 1 of 1 229 Water Depth: Public Info Code: Y 24-MAY-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	_	Paleo Top Description		Ecc	<u>ozone</u>
4694 / 4694	DEF	AT first sample examined	DEF	IN	2
4695 / 4695	DEF	AT limestone	DEF	IN	2
4910 / 4910	DEF	AT	DEF	AT	1
5030 / 5030	DEF	AT pyrite	DEF	AT	1
5149 / 5149	POS	AT unconformity	DEF	AT	2
5150 / 5150	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	2
5180 / 5180	DEF	AT pyrite	DEF	AT	2
5209 / 5209	DEF	AT pyrite	DEF	AT	2
5210 / 5210	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	2
5240 / 5240	DEF	AT	DEF	IN	1
5300 / 5300	DEF	AT pyrite	DEF	IN	1
5420 / 5420	DEF	AT	DEF	AT	1
5540 / 5540	DEF	AT	DEF	IN	1
5660 / 5660	DEF	AT	DEF	AT	2
5780 / 5780	DEF	AT	DEF	IN	1
5960 / 5960	DEF	AT pyrite	DEF	IN	1
6050 / 6050	DEF	AT Cyclammina sp. (local marker)	DEF	IN	1
6110 / 6110	DEF	IN Upper Miocene (Messinian) Textularia "X"	DEF	AT	2
6290 / 6290	DEF	AT	DEF	IN	1
6650 / 6650	DEF	AT cement	POS	AT	1
6679 / 6679	POS	AT unconformity	DEF	IN	3
6680 / 6680	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3

**GEOLOGIC** 02-FEB-2011 PAGE: 1033

Water Depth:

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-MAY-2000 First Sample Examined: 4694 Source of Paleo: OPERATOR Lease Number: G15395 **Borehole MD:** 12046 Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 12039 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177244085700 **Rkb Elevation:** 101 229

**Sample Range:** 4694 - 12044 Paleo Report Num: 1 of 1

Public Info Code: Y 24-MAY-2010 **Ecozone Eq MMS:** Y

MD / TVD	<u> </u>	Paleo Top Description		<u>Ec</u>	ozone
6681 / 668	1 DEF	AT Eggerella 3 (local marker)	DEF	IN	3
6770 / 677	0 DEF	AT	DEF	AT	3
6830 / 683	0 DEF	AT	DEF	IN	2
6979 / 697	9 DEF	AT pyrite	DEF	IN	2
6980 / 698	0 DEF	AT Arenaceous fauna (local marker)	DEF	IN	2
7160 / 716	0 DEF	AT	DEF	AT	3
7189 / 718	9 DEF	AT pyrite	DEF	AT	3
7190 / 719	0 DEF	AT Arenaceous fauna (local marker)	DEF	AT	3
7250 / 725	0 DEF	AT Eggerella sp. (local marker)	DEF	AT	3
7370 / 737	0 DEF	AT	DEF	AT	0
7489 / 748	9 DEF	AT pyrite	DEF	IN	3
7490 / 749	0 DEF	AT Eggerella 3 (local marker)	DEF	IN	3
7640 / 764	0 DEF	AT Upper Miocene (Tortonian) Reophax davepopei	DEF	IN	3
7760 / 776	0 DEF	AT	DEF	AT	3
8120 / 812	0 DEF	AT pyrite	DEF	AT	3
8160 / 816	0 DEF	AT cement	DEF	AT	3
8210 / 821	0 DEF	AT pyrite	DEF	AT	3
8240 / 824	0 DEF	AT Eggerella sp. (local marker)	DEF	AT	3
8420 / 842	0 DEF	AT limestone	DEF	AT	3
8479 / 847	8 DEF	AT pyrite	POS	AT	4
8480 / 847	9 DEF	AT local marker foram increase	POS	AT	4
8510 / 850	9 DEF	AT Upper Miocene (Tortonian) Cyclammina 3	POS	AT	4
8570 / 856	9 DEF	AT Cyclammina cancellata (local marker)	POS	AT	4
8600 / 859	9 DEF	AT Eggerella sp. (local marker)	POS	AT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 1034

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-MAY-2000 First Sample Examined: 4694 Lease Number: G15395 Source of Paleo: OPERATOR **Borehole MD:** 12046 Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 12039

Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177244085700 **Rkb Elevation:** 101 229 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 4694 - 12044

Public Info Code: Y 24-MAY-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Ē	<u> Ecozone</u>
8630 / 8629	DEF	AT pyrite	POS	AT	4
8660 / 8659	DEF	AT	DEF	IN	3
8750 / 8749	DEF	AT	DEF	AT	3
8809 / 8808	DEF	AT pyrite	DEF	AT	3
8810 / 8809	DEF	AT local marker foram decrease	DEF	AT	3
8840 / 8839	DEF	AT Eggerella sp. (local marker)	DEF	AT	3
8930 / 8929	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
8990 / 8989	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	IN	3
9020 / 9019	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
9170 / 9169	DEF	AT local marker planktic foram increase	DEF	IN	3
9230 / 9229	DEF	AT pyrite	DEF	AT	4
9259 / 9258	POS	AT reworked material	DEF	AT	4
9260 / 9259	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	4
9410 / 9408	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9440 / 9438	DEF	AT pyrite	DEF	AT	4
9470 / 9468	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9530 / 9528	DEF	AT pyrite	DEF	AT	4
9590 / 9588	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
9830 / 9828	DEF	AT	DEF	IN	3
9920 / 9918	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
10010 / 10008	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
10040 / 10038	DEF	AT local marker foram increase	DEF	IN	3
10070 / 10067	DEF	AT	DEF	AT	4
10160 / 10157	DEF	AT	DEF	IN	3

GEOLOGIC 02-FEB-2011

Paleo ID:

PAGE: 1035

229

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-MAY-2000 First Sample Examined: 4694 Source of Paleo: OPERATOR Lease Number: G15395 **Borehole MD:** 12046 Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 12039 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177244085700 **Rkb Elevation:** 101

Paleo Report Num: 1 of 1 Sample Range: 4694 - 12044 Water Depth:

Public Info Code: Y 24-MAY-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			Ecc	<u>zone</u>
10190 / 10187	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	D	EF	IN	3
10249 / 10246	POS	AT unconformity	D!	EF	AT	5
10250 / 10247	DEF	AT pyrite	D!	EF	AT	5
10310 / 10307	DEF	AT pyrite	D!	EF	AT	5
10370 / 10367	DEF	AT Arenaceous fauna (local marker)	D!	EF	AT	5
10430 / 10427	DEF	IN Upper Miocene (Tortonian) Textularia "L"	D!	EF	AT	5
10520 / 10516	DEF	AT Arenaceous fauna (local marker)	D!	EF	AT	5
10580 / 10576	DEF	AT Upper Miocene (Tortonian) Textularia "G"	D!	EF	AT	4
10879 / 10875	DEF	AT pyrite	DI	EF	AT	4
10880 / 10876	DEF	AT Arenaceous fauna (local marker)	DI	EF	AT	4
11420 / 11415	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DI	EF	AT	4
11510 / 11504	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DI	EF	AT	5
11540 / 11534	DEF	AT local marker planktic foram increase	DI	EF	AT	5
11569 / 11563	DEF	AT pyrite	DI	EF	AT	5
11570 / 11564	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DI	EF	AT	5
11660 / 11654	DEF	AT pyrite	DI	EF	AT	5
11690 / 11684	DEF	AT Middle Miocene (Serravallian) Robulus 5 / 55	DI	EF	AT	5
11719 / 11713	DEF	AT Eggerella sp. (local marker)	D!	EF	AT	5
11720 / 11714	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DI	EF	AT	5
11750 / 11744	DEF	AT Cyclammina cancellata (local marker)	D!	EF	AT	5
11870 / 11864	DEF	AT Eggerella sp. (local marker)	DI	EF	AT	5
12043 / 12036	DEF	AT	DI	EF	AT	5
12044 / 12037	DEF	AT last sample examined	D!	EF	AT	5

GEOLOGIC 02-FEB-2011

PAGE: 1036

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-JUN-2000 First Sample Examined: 7970 Lease Number: G15395 Source of Paleo: OPERATOR 12930 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 11634 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177244085701 **Rkb Elevation:** 101 **Sample Range:** 7970 - 12950 Paleo Report Num: 1 of 1 229 Water Depth: Public Info Code: Y 20-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD/T	TVD	Paleo Top Description		Eco	zone
7970 / 3	7970 DE	AT first sample examined	DEF	AT	3
7971 / 3	7971 DE	IN Upper Miocene (Tortonian) Reophax davepopei	DEF	AT	3
8000 / 8	8000 DE	AT Eggerella sp. (local marker)	DEF	AT	3
8120 / 8	8119 DE	AT pyrite	POS	AT	3
8180 / 8	8179 DE	AT pyrite	DEF	AT	3
8330 / 8	8327 DE	AT Eggerella sp. (local marker)	DEF	AT	3
8390 / 8	8386 PO	S AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	3
8450 / 8	8444 DE	AT limestone	DEF	AT	3
8570 / 8	8559 DE	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
8600 / 8	8588 DE	AT Cyclammina cancellata (local marker)	DEF	AT	4
8660 / 8	8644 DE	AT pyrite	DEF	AT	4
8720 / 8	8700 DE	AT	DEF	IN	3
8840 / 8	8810 DE	AT	DEF	AT	3
8960 / 8	8917 DE	AT pyrite	DEF	IN	3
9020 / 8	8969 DE	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
9049 / 8	8993 DE	AT pyrite	DEF	AT	4
9050 / 8	8994 DE	AT Arenaceous fauna (local marker)	DEF	AT	4
9200 / 9	9119 DE	AT local marker planktic foram increase	DEF	AT	4
9260 / 9	9168 DE	AT Arenaceous fauna (local marker)	DEF	AT	4
9290 / 9	9191 DE	AT Cyclammina cancellata (local marker)	DEF	AT	4
9320 / 9	9214 DE	AT Eggerella sp. (local marker)	DEF	AT	4
9469 / 9	9326 PO	S AT reworked material	DEF	AT	4

**GEOLOGIC** 02-FEB-2011

PAGE: 1037

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-JUN-2000 First Sample Examined: 7970 Lease Number: G15395 Source of Paleo: OPERATOR **Borehole MD:** 12930

Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 11634 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177244085701 **Rkb Elevation:** 101 229 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 7970 - 12950

Public Info Code: Y 20-JUN-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
9470 / 9327	DEF	AT pyrite	DEF	AT	4
9500 / 9349	DEF	AT	DEF	IN	3
9620 / 9433	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9710 / 9493	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9770 / 9531	DEF	AT pyrite	DEF	AT	4
9860 / 9586	DEF	AT	DEF	IN	3
9950 / 9640	DEF	AT pyrite	DEF	IN	3
10039 / 9693	DEF	AT pyrite	DEF	IN	3
10040 / 9694	DEF	AT Cyclammina cancellata (local marker)	DEF	IN	3
10099 / 9729	DEF	AT pyrite	DEF	IN	3
10100 / 9730	DEF	AT Eggerella 3 (local marker)	DEF	IN	3
10160 / 9766	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
10190 / 9784	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
10310 / 9856	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
10370 / 9893	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
10430 / 9929	DEF	AT pyrite	DEF	AT	4
10490 / 9966	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
10550 / 10002	DEF	AT	DEF	IN	3
10669 / 10075	DEF	AT pyrite	DEF	IN	3
10670 / 10076	DEF	AT Upper Miocene (Tortonian) Textularia "G"	DEF	IN	3
10730 / 10112	DEF	AT Cyclammina cancellata (local marker)	DEF	IN	3
10760 / 10130	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
10789 / 10148	DEF	AT pyrite	DEF	AT	5
10790 / 10148	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1038

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:MP275Date of Summary:01-JUN-2000First Sample Examined:7970Lease Number:G15395Source of Paleo:OPERATORBorehole MD:12930Well Name:A001Paleo Done By:APPLIED BIOSTRATIGRAPHIXBorehole TVD:11634API Well Number:177244085701Drilling Operator:VASTAR RESOURCES INC.Rkb Elevation:101

API Well Number: 177244085701 Drilling Operator: VASTAR RESOURCES INC. Rkb Elevation: 101
Paleo Report Num: 1 of 1 Sample Range: 7970 - 12950 Water Depth: 229

Public Info Code: Y 20-JUN-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
10820 / 10167	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
10940 / 10240	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
10970 / 10258	DEF	AT local marker foram increase	DEF	AT	5
11030 / 10295	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
11150 / 10368	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
11270 / 10441	DEF	IN Upper Miocene (Tortonian) Textularia "G"	DEF	AT	5
11330 / 10478	DEF	AT local marker foram increase	DEF	AT	5
11390 / 10515	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
11480 / 10570	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
11481 / 10571	DEF	AT pyrite	DEF	ΑT	5
11510 / 10588	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
11570 / 10625	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	5
11630 / 10662	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
11690 / 10699	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	5
11720 / 10717	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
11810 / 10772	DEF	AT	DEF	ΑT	5
11839 / 10790	DEF	AT pyrite	DEF	ΑT	5
11840 / 10791	DEF	AT local marker planktic foram increase	DEF	ΑT	5
11930 / 10848	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
11990 / 10887	POS	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	4
12080 / 10947	DEF	AT pyrite	DEF	ΑT	4
12140 / 10989	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
12220 / 11047	DEF	AT	POS	ΑT	5
12260 / 11078	DEF	AT Cyclammina cancellata (local marker)	POS	ΑT	5

12860 / 11575

12930 / 11634

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE: 1039

DEF AT

DEF AT

4

4

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-JUN-2000 7970 First Sample Examined: Lease Number: G15395 Source of Paleo: OPERATOR 12930 **Borehole MD:** Well Name: A001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 11634 **API Well Number:** 177244085701 **Drilling Operator:** VASTAR RESOURCES INC. **Rkb Elevation:** 101 229 Paleo Report Num: 1 of 1 **Sample Range:** 7970 - 12950 Water Depth: Public Info Code: Y 20-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

 MD / TVD
 Paleo Top Description
 Ecozone

 12350 / 11150
 DEF AT pyrite
 POS AT 5

 12440 / 11224
 DEF AT Arenaceous fauna (local marker)
 DEF AT 0

 12500 / 11273
 DEF AT local marker foram increase
 DEF AT 0

DEF AT Arenaceous fauna (local marker)

DEF AT last sample examined

GEOLOGIC 02-FEB-2011 PAGE: 1040

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-JUL-2000 First Sample Examined: 8340 Lease Number: G15395 Source of Paleo: OPERATOR 14521 **Borehole MD:** Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13764 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177244086100 **Rkb Elevation:** 100 **Sample Range:** 8340 - 14521 Paleo Report Num: 1 of 1 229 Water Depth: Public Info Code: Y 12-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVI	<u>D</u>	Paleo Top Description		Ecc	ozone
8340 / 81	42 DEF	AT first sample examined	POS	AT	3
8341 / 81	43 DEF	AT cement	POS	AT	3
8400 / 82	02 DEF	AT	DEF	AT	3
8760 / 85	62 POS	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	3
8788 / 85	90 DEF	AT pyrite	DEF	AT	3
8789 / 85	91 POS	AT unconformity	DEF	AT	3
8790 / 85	92 DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
8791 / 85	93 DEF	AT Eggerella sp. (local marker)	DEF	AT	3
8820 / 86	22 DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
8850 / 86	52 DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
8970 / 87	72 DEF	AT	DEF	IN	3
9030 / 88	32 DEF	AT pyrite	DEF	IN	3
9150 / 89	52 DEF	AT pyrite	DEF	IN	3
9180 / 89	82 DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
9210 / 90	12 DEF	AT Eggerella sp. (local marker)	DEF	AT	4
9270 / 90	72 DEF	AT pyrite	DEF	AT	4
9360 / 91	61 DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
9420 / 92	21 DEF	AT Eggerella 3 (local marker)	DEF	AT	4
9450 / 92	51 DEF	AT Eggerella sp. (local marker)	DEF	AT	4
9540 / 93	39 DEF	AT	DEF	IN	3
9660 / 94	57 DEF	AT	DEF	AT	3
9809 / 96	02 DEF	AT limestone	DEF	IN	3

**GEOLOGIC** 02-FEB-2011

PAGE: 1041

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-JUL-2000 First Sample Examined: 8340 Lease Number: G15395 Source of Paleo: OPERATOR **Borehole MD:** 14521

> Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13764 Drilling Operator: VASTAR RESOURCES INC. **API Well Number: 177244086100 Rkb Elevation:** 100 229 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 8340 - 14521

Public Info Code: Y 12-AUG-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u> c	ozone
9810 / 9603	DEF	AT local marker foram increase	DEF	IN	3
9870 / 9661	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
9930 / 9719	DEF	AT pyrite	DEF	IN	3
10020 / 9805	DEF	AT local marker foram increase	DEF	IN	3
10080 / 9862	DEF	AT	DEF	AT	4
10110 / 9890	POS	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	4
10230 / 10001	DEF	AT	DEF	IN	3
10260 / 10028	DEF	AT pyrite	DEF	IN	3
10320 / 10083	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
10349 / 10109	DEF	AT pyrite	DEF	AT	4
10350 / 10110	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
10409 / 10163	DEF	AT pyrite	DEF	AT	4
10410 / 10164	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
10529 / 10268	DEF	AT pyrite	DEF	AT	5
10530 / 10269	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
10531 / 10269	DEF	AT local marker planktic foram increase	DEF	AT	5
10560 / 10294	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
10619 / 10345	DEF	AT reworked material	DEF	AT	5
10620 / 10346	DEF	AT local marker planktic foram increase	DEF	AT	5
10650 / 10371	DEF	AT reworked material	DEF	AT	5
10740 / 10448	DEF	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	ΑT	4
10770 / 10473	POS	IN Upper Miocene (Tortonian) Textularia "G"	DEF	ΑT	4
10830 / 10523	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	4
10890 / 10571	DEF	AT Eggerella sp. (local marker)	DEF	AT	4

**GEOLOGIC** 02-FEB-2011

PAGE: 1042

002

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 275 Date of Summary: 01-JUL-2000 First Sample Examined: 8340 Lease Number: G15395 Source of Paleo: OPERATOR **Borehole MD:** 14521

Well Name: A002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 13764 Drilling Operator: VASTAR RESOURCES INC. **API Well Number: 177244086100 Rkb Elevation:** 100 229 Water Depth:

Paleo Report Num: 1 of 1 **Sample Range:** 8340 - 14521

Public Info Code: Y 12-AUG-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Ecc	zone
11160 /10781 D	DEF	AT drilling material	DEF	AT	4
11220 / 10824 D	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
11880 /11290 D	DEF	AT pyrite	DEF	AT	4
11910 / 11313 D	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
11970 / 11358 D	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
12060 / 11429 D	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
12239 / 11578 D	DEF	AT pyrite	DEF	AT	5
12240 / 11578 D	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
12270 /11604 D	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
12303 / 11632 P	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
12390 /11705 D	DEF	AT cement	DEF	AT	4
12550 /11844 D	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
12578 /11868 D	DEF	AT pyrite	DEF	AT	4
12579 / 11869 P	POS	AT unconformity	DEF	AT	4
12580 / 11870 D	DEF	AT local marker foram increase	DEF	AT	4
12610 /11897 D	DEF	AT local marker foram increase	DEF	AT	4
12640 /11924 D	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
12730 /12004 D	DEF	AT pyrite	DEF	AT	5
12790 / 12059 D	DEF	AT	DEF	AT	4
13419 / 12663 D	DEF	AT Eggerella sp. (local marker)	DEF	AT	5
13420 / 12664 D	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
13479 / 12722 D	DEF	AT local marker planktic foram increase	DEF	AT	5
13480 /12723 D	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	AT	5
13660 /12903 D	DEF	AT	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 1043

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP	275 Date of Summary:	01-JUL-2000	First Sample Examined:	8340
Lease Number: G15	Source of Paleo:	OPERATOR	Borehole MD:	14521
Well Name: A00	Paleo Done By:	APPLIED BIOSTRATIGRAPHIX	Borehole TVD:	13764
API Well Number: 1772	244086100 Drilling Operator:	VASTAR RESOURCES INC.	Rkb Elevation:	100
Paleo Report Num: 1	of 1 Sample Range:	8340 - 14521	Water Depth:	229
Public Info Code: Y 1	2-AUG-2010 Ecozone Eq MMS:	Υ	Paleo ID:	002

MD / TVD	Paleo Top Description			<u>Ecozone</u>		
13690 / 12933	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4	
14050 / 13293	DEF	AT	DEF	IN	3	
14500 / 13743	DEF	AT pyrite	DEF	IN	3	
14521 / 13764	DEF	AT last sample examined	DEF	IN	3	

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1044

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 277 Date of Summary: 30-AUG-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14586 9291 **Borehole MD:** Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 7876 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177244084300 **Rkb Elevation:** 100 0 - 0 224 Paleo Report Num: 1 of 1 Sample Range: Water Depth:

> Public Info Code: Y 30-AUG-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVDPaleo Top DescriptionEcozone8060 / 6888DEF AT Upper Miocene (Tortonian) Amphistegina "E"DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1045

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 277 Date of Summary: 27-SEP-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14586 **Borehole MD:** 6898 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 6417 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177244084301 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 224 Water Depth: Public Info Code: Y 18-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
1410 / 1410	DEF AT Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
2310 / 2278	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
5100 / 4654	DEF AT Upper Miocene (Messinian) Textularia "X"	DEF AT
5760 / 5300	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1046

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 277 Date of Summary: 22-JAN-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14586 **Borehole MD:** 12580 Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD:** 10741 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177244087100 **Rkb Elevation:** 67 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 223 Water Depth: Public Info Code: Y 15-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5461 / 5416	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
9525 / 8477	DEF AT Upper Miocene (Tortonian) Cibicides carstensi	DEF AT
11310 / 9804	DEF AT Upper Miocene (Tortonian) Uvigerina 3	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1047

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 280 Date of Summary: 21-APR-1999 First Sample Examined: 5090 Lease Number: G16515 Source of Paleo: OPERATOR **Borehole MD:** 11754 Well Name: C001 Paleo Done By: PALEO SOURCE **Borehole TVD:** 11195 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 177244081100 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 5090 - 11740 300 Water Depth: Public Info Code: Y 03-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
5090 / 5090	DEF	AT first sample examined	POS	AT	4
5420 / 5420	DEF	IN Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
6460 / 6460	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
6760 / 6760	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	4
7210 / 7210	DEF	AT unconformity	DEF	AT	4
7330 / 7330	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	4
8920 / 8919	DEF	AT unconformity	DEF	AT	5
9220 / 9213	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	5
9850 / 9790	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	5
10239 / 10104	DEF	AT reworked material	DEF	AT	5
10240 / 10105	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
10720 / 10462	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
11740 / 11186	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1048

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 280 4700 Date of Summary: 26-MAY-1998 First Sample Examined: Lease Number: G16515 Source of Paleo: OPERATOR 15675 **Borehole MD:** Well Name: C002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13520 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 177244081500 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 4700 - 15651 300 Water Depth: Public Info Code: Y 19-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u>VD</u>		Paleo Top Description		<u>Ecozone</u>
4700 D	DEF	AT first sample examined	DEF	AT
4760 D	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
5497 D	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
7162 D	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
7557 D	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
7580 D	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
3613 D	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
9319 D	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)	DEF	AT
9758 D	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
9899 D	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
0041 D	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
0482 D	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
1502 D	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri (acme)	DEF	AT
2855 D	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
3453 D	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
3501 D	DEF	AT last sample examined	DEF	AT
4 4 5 7 7 8 8 8 8 8 8 8 8	7700 C 7760 C 7497 C 7162 C 7580 C	1700 DEF 1760 DEF 16497 DEF 162 DEF 17557 DEF 17580 DEF 18613 DEF 18758 DEF	DEF AT Ignet sample examined  DEF AT Upper Miocene (Messinian) Discoaster berggrenii  DEF AT Upper Miocene (Tortonian) Discoaster berggrenii "C"  DEF AT Upper Miocene (Tortonian) Discoaster berggrenii "C"  DEF AT Upper Miocene (Tortonian) Discoaster loeblichii  DEF AT Upper Miocene (Tortonian) Discoaster loeblichii  DEF AT Upper Miocene (Tortonian) Catinaster mexicanus  DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus  DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)  DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase)  DEF AT Upper Miocene (Tortonian) Discoaster hamatus  DEF AT Upper Miocene (Tortonian) Discoaster hamatus  DEF AT Upper Miocene (Tortonian) Catinaster coalitus  DEF AT Upper Miocene (Tortonian) Catinaster coalitus  DEF AT Middle Miocene (Serravallian) Coccolithus miopelagicus  DEF AT Middle Miocene (Serravallian) Discoaster kugleri (acme)  DEF AT Middle Miocene (Serravallian) Discoaster sanniguelensis  DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF AT Upper Miocene (Tortonian) Discoaster berggrenii C" DEF AT Upper Miocene (Tortonian) Discoaster calcaris DEF AT Upper Miocene (Tortonian) Discoaster loeblichii DEF AT Upper Miocene (Tortonian) Discoaster loeblichii DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus DEF AT Upper Miocene (Tortonian) Discoaster prepentaradiatus (increase) DEF AT Upper Miocene (Tortonian) Discoaster bollii DEF AT Upper Miocene (Tortonian) Discoaster bollii DEF AT Upper Miocene (Tortonian) Discoaster hamatus DEF AT Upper Miocene (Tortonian) Discoaster hamatus DEF AT Upper Miocene (Tortonian) Discoaster hamatus DEF AT Upper Miocene (Tortonian) Catinaster coalitus DEF AT Upper Miocene (Serravallian) Discoaster kugleri (acme) DEF AT Middle Miocene (Serravallian) Discoaster kugleri (acme) DEF AT Middle Miocene (Serravallian) Discoaster sanmiguelensis DEF AT Middle Miocene (Serravallian) Sphenolithus heteromorphus DEF

GEOLOGIC 02-FEB-2011 PAGE: 1049

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 280 4700 Date of Summary: 26-MAY-1998 First Sample Examined: Lease Number: G16515 Source of Paleo: OPERATOR 15675 **Borehole MD:** Well Name: C002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13520 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 177244081500 **Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 4700 - 15651 300 Water Depth: Public Info Code: Y 19-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 003

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4700 / 4700	DEF	AT first sample examined	DEF	AT	3
5510 / 5497	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	3
5630 / 5610	DEF	AT	DEF	AT	4
5690 / 5666	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
7070 / 6812	DEF	AT	DEF	AT	4
8240 / 7719	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	4
10249 / 9318	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	4
10250 / 9319	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
10280 / 9342	DEF	AT Upper Miocene (Tortonian) Eponides mansfieldi	DEF	AT	4
10820 / 9758	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	4
11240 / 10088	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
11689 / 10434	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	5
11690 / 10435	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	5
11780 / 10505	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	5
11840 / 10552	DEF	AT Upper Miocene (Tortonian) Discamminoides tobleri	DEF	AT	5
11960 / 10647	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
12050 / 10717	DEF	AT Upper Miocene (Tortonian) Haplophragmoides wilsoni (local acme)	DEF	AT	4
12200 / 10832	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
12230 / 10855	DEF	AT local marker foram decrease	DEF	AT	4
12770 / 11269	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
13100 / 11525	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	5
14839 / 12877	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	5

GEOLOGIC

02-FEB-2011 PAGE: 1050

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 280	Date of Summary: 26-MAY-1998	First Sample Examined:	4700
Lease Number: G16515	Source of Paleo: OPERATOR	Borehole MD:	15675
Well Name: C002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	13520
<b>API Well Number: 177244081500</b>	Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC	Rkb Elevation:	91
Paleo Report Num: 2 of 2	Sample Range: 4700 - 15651	Water Depth:	300
Public Info Code: Y 19-JUN-2008	Ecozone Eg MMS: Y	Paleo ID:	003

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
14840 / 12878	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	5
15350 / 13265	DEF	AT Middle Miocene (Serravallian) Gyroidina miocenica	DEF	AT	5
15651 / 13501	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE: 1051

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MP 281	Date of Summary: 20-AUG-1999	First Sample Examined:	0
Lease Number: G10910	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14759
Well Name: A004	Paleo Done By: OPERATOR	Borehole TVD:	13387
API Well Number: 177244080600	<b>Drilling Operator: DOMINION EXPLORATION &amp; PRODUCTION INC</b>	Rkb Elevation:	87
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	307
Public Info Code: Y 20-FEB-2008	Ecozone Ea MMS:	Paleo ID:	001

MD / TVD		Paleo Top Description		<u>Ecozone</u>
9140 / 9097	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF AT	Γ
9895 / 9709	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF AT	Γ
10790 / 10377	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF AT	Γ
11970 / 11269	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF AT	Γ

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1052

307

**Borehole MD:** 

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 281 Date of Summary: 21-DEC-1997

First Sample Examined: 0 10715

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16515 Well Name: 002

Paleo Done By: OPERATOR **Borehole TVD:** 9099 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC Rkb Elevation:** 87

**API Well Number:** 177244080200 0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Public Info Code: Y 14-JAN-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Miocene (Tortonian) Robulus "E" 6240 / 5885 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1053

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 283 Date of Summary: 09-FEB-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G13662 **Borehole MD:** 14350 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 13221 Drilling Operator: MOBIL OIL EXPLORATION & PRODUC **API Well Number:** 177244079902 **Rkb Elevation:** 108 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 295 Water Depth: Public Info Code: Y 14-JAN-2008 **Ecozone Eq MMS:** Paleo ID: 001

<u> </u>	Paleo Top Description	<u>Ecozone</u>
5940 / 5918	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
7590 / 7364	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
9240 / 8806	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1054

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MP 299 4100 Date of Summary: 31-JUL-2000 First Sample Examined: Lease Number: G01316 Source of Paleo: OPERATOR **Borehole MD:** 6257 Well Name: DA009 Paleo Done By: OPERATOR **Borehole TVD:** 5749 **Drilling Operator: CHEVRON USA INC API Well Number:** 177244085100 **Rkb Elevation:** 119 Paleo Report Num: 1 of 1 **Sample Range:** 4100 - 6257 215 Water Depth: Public Info Code: Y 26-FEB-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Company-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available

MD /	TVD		Paleo Top Description		Ecoz	<u>zone</u>
4100 /	3633	DEF	AT first sample examined	DEF	IN	3
4101 /	3634	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	IN	3
4250 /	3771	DEF	AT	DEF	AT	2
4430 /	3941	DEF	AT	DEF	AT	3
4550 /	4057	DEF	AT	DEF	IN	2
4730 /	4233	DEF	AT	DEF	AT	3
4790 /	4292	DEF	AT	DEF	IN	2
5150 /	4648	DEF	AT	DEF	AT	2
5930 /	5427	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	5
5931 /	5428	DEF	AT local marker floral increase	DEF	AT	5
5990 /	5487	DEF	IN Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	5
6020 /	5517	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	5
6080 /	5577	DEF	AT	DEF	AT	6
6170 /	5667	DEF	AT	DEF	IN	5
6257 /	5754	DEF	AT last sample examined	DEF	IN	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1055

5798

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MU 726 Date of Summary: 05-DEC-2000 First Sample Examined: 0

Lease Number: G20605 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD: 5309

API Well Number: 427024027701 Drilling Operator: HOUSTON EXPLORATION COMPANY Rkb Elevation: 96

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 84

Public Info Code: Y 16-NOV-2010 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

5465 / 5009 DEF AT Lower Miocene (Aquitanian) Siphonina davisi DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1056

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MU 726 Date of Summary: 02-JAN-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G20605 **Borehole MD:** 5629 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 5629 **Drilling Operator:** HOUSTON EXPLORATION COMPANY **API Well Number:** 427024027800 **Rkb Elevation:** 96 Water Depth: 84

Paleo Report Num:1 of 1Sample Range:0 - 0Public Info Code:Y 27-DEC-2010Ecozone Eq MMS:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
3022 / 3022	DEF AT Middle Miocene (Langhian) Amphistegina "B"	DEF AT
5200 / 5199	DEF AT Lower Miocene (Aquitanian) Siphonina davisi	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1057

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: MU 787 Date of Summary: 06-SEP-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G11221 **Borehole MD:** 9774 Well Name: A005 Paleo Done By: OPERATOR **Borehole TVD:** 7950 **Drilling Operator:** VASTAR RESOURCES INC. **API Well Number:** 427024022501 **Rkb Elevation:** 125 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 151 Public Info Code: Y 26-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
8070 / 7015	DEF IN Lower Miocene (Burdigalian) Robulus chambersi	DEF AT
8300 / 7140	DEF AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1058

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: MU 858	Date of Summary: 30-JAN-1998	First Sample Examined:	0
Lease Number: G12421	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15000
Well Name: 002	Paleo Done By: OPERATOR	Borehole TVD:	15000
<b>API Well Number: </b> 427024026400	Drilling Operator: HOUSTON EXPLORATION COMPANY	Rkb Elevation:	82
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	90
Public Info Code: Y 01-FEB-2008	Ecozone Ea MMS:	Paleo ID:	001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7878 / 7878	DEF AT Upper Oligocene (Chattian) Discorbis gravelli	DEF AT
9442 / 9442	DEF AT Upper Oligocene (Chattian) Marginulina vaginata	DEF AT
12268 / 12268	DEF AT Upper Oligocene (Chattian) Cibicides hazzardi	DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011 PAGE: 1059

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Pl 526 6623 Date of Summary: 08-MAR-2007 First Sample Examined: Lease Number: G25702 Source of Paleo: OPERATOR 26546 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 26539 **Drilling Operator: HESS CORPORATION API Well Number:** 608024000500 **Rkb Elevation:** 82 3509 Paleo Report Num: 1 of 1 **Sample Range:** 6623 - 26542 Water Depth: Public Info Code: Y 03-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Jack Hays Prospect, consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report

for details

MD / TVD		Paleo Top Description		Eco	zone
6623 / 6623	DEF	AT first sample examined	DEF	IN	5
6624 / 6624	POS	IN Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	IN	5
6680 / 6680	DEF	AT	DEF	AT	6
6799 / 6799	DEF	IN Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	6
6800 / 6800	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
6830 / 6830	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	6
6889 / 6889	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	6
6890 / 6890	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	6
7070 / 7070	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	6
7100 / 7100	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	6
7130 / 7130	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	6
7220 / 7220	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	6
7250 / 7250	DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT	6
7459 / 7459	DEF	IN Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	6
7460 / 7460	POS	IN Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	6
7490 / 7490	POS	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	6
7610 / 7610	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	6
7730 / 7730	DEF	AT Lower Miocene (Burdigalian) Gyroidina 8	DEF	AT	6
7880 / 7880	DEF	AT Lower Miocene (Burdigalian) Siphogenerina fredsmithi	DEF	AT	6
7910 / 7910	DEF	AT Lower Miocene (Aquitanian) Globigerinoides primordius	DEF	AT	6
8030 / 8030	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT	6

GEOLOGIC 02-FEB-2011

PAGE: 1060

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:PI526Date of Summary:08-MAR-2007First Sample Examined:6623Lease Number:G25702Source of Paleo:OPERATORBorehole MD:26546Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:26539

API Well Number: 608024000500 Drilling Operator: HESS CORPORATION Rkb Elevation: 82
Paleo Report Num: 1 of 1 Sample Range: 6623 - 26542 Water Depth: 3509

Public Info Code: Y 03-SEP-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			Ecc	<u>ozone</u>
8120 / 8120	POS	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DE	F	AT	6
8150 / 8150	POS	AT Lower Miocene (Aquitanian) Sphenolithus capricornutus	DE	F	AT	6
8180 / 8180	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DE	F	AT	6
8390 / 8390	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DE	F	AT	6
8780 / 8780	DEF	AT	DE	F	AT	4
9050 / 9050	DEF	AT	DE	F	AT	5
9200 / 9200	DEF	AT local marker floral increase	DE	F	AT	5
9289 / 9289	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DE	F	AT	5
9290 / 9290	POS	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DE	F	AT	5
9740 / 9740	DEF	AT Upper Oligocene (Chattian) Bolivina perca	DE	F	AT	5
10580 / 10580	DEF	AT Upper Oligocene (Chattian) Marginulina idiomorpha	DE	F	AT	5
10640 / 10640	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DE	F	AT	5
10880 / 10880	DEF	AT	DE	F	AT	6
10970 / 10970	DEF	AT	DE	F	IN	5
11059 / 11059	DEF	AT local marker planktic foram increase	DE	F	IN	5
11060 / 11060	DEF	AT Upper Oligocene (Chattian) Globorotalia opima nana	DE	F	IN	5
12469 / 12468	POS	AT Upper Oligocene (Chattian) Sphenolithus distentus	DE	F	IN	5
12470 / 12469	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DE	F	IN	5
12860 / 12859	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DE	F	IN	5
15020 / 15018	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DE	F	IN	5
17970 / 17966	DEF	AT local marker floral increase	DE	F	IN	5
18120 / 18116	DEF	AT local marker floral increase	DE	F	IN	5
18310 / 18306	DEF	AT local marker floral increase	DE	F	IN	5
18360 / 18356	DEF	AT local marker floral increase	DE	F	IN	5

**GEOLOGIC** 02-FEB-2011

PAGE: 1061

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: Pl 526 Date of Summary: 08-MAR-2007 First Sample Examined: 6623 Source of Paleo: OPERATOR Lease Number: G25702 **Borehole MD:** 26546 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 26539 **Drilling Operator: HESS CORPORATION API Well Number:** 608024000500 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 6623 - 26542 3509 Water Depth: Paleo ID: 001

Public Info Code: Y 03-SEP-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<b>Ecozone</b>
18740 / 18736	DEF	AT local marker floral increase	DEF IN	N 5
19160 / 19156	DEF	AT local marker floral increase	DEF IN	N 5
20120 / 20115	DEF	AT reworked material	DEF IN	N 5
20300 / 20295	DEF	AT	DEF A	T 4
22160 / 22155	DEF	AT	DEF A	T 5
22400 / 22395	POS	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF A	T 4
23240 / 23235	DEF	AT	DEF A	T 5
23360 / 23355	DEF	AT	DEF A	T 4
23930 / 23925	DEF	AT	DEF A	T 3
26542 / 26535	DEF	AT last sample examined	DEF A	T 3

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1062

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: PL 17	Date of Summary: 02-JUL-1999	First Sample Examined:	0
Lease Number: G14533	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14523
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD:	14523
API Well Number: 177134021600	Drilling Operator: HALL-HOUSTON OIL COMPANY	Rkb Elevation:	90
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	58

Remark:

Public Info Code: Y 03-JUL-2009

MD / TVD	Paleo Top Description	<u>Ecozone</u>
9130 / 9129	DEF AT Upper Miocene (Messinian) Textularia "X"	DEF AT
12120 / 12116	DEF AT Cyclammina sp. (local marker)	DEF AT

**Ecozone Eq MMS:** 

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1063

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: PL 23 Date of Summary: 30-SEP-1997 First Sample Examined: 0

> Lease Number: G01238 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) 17175 **Borehole MD:** 16589

Well Name: D003 Paleo Done By: OPERATOR **Borehole TVD:** 

**Drilling Operator: STONE PETROLEUM CORPORATION API Well Number: 177134020500 Rkb Elevation:** 99

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 60 Public Info Code: Y 13-MAR-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** DEF AT Upper Miocene (Tortonian) Robulus "E" 13770 / 13455 DEF AT

DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT 15310 / 14888

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1064

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: PL 23	Date of Summary: 25-NOV-1998	First Sample Examined:	0
Lease Number: G01238	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	18814
Well Name: E001	Paleo Done By: OPERATOR	Borehole TVD:	18510
API Well Number: 177134020900	Drilling Operator: STONE ENERGY CORPORATION	Rkb Elevation:	98
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	60
Public Info Code: Y 14-FEB-2008	Ecozone Eg MMS: N	Paleo ID:	001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12690 / 12688	DEF AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF AT
13590 / 13580	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF AT
16950 / 16763	DEF AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1065

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: PN 892 Date of Summary: 09-MAR-2000 First Sample Examined: 0

 Lease Number:
 G08963
 Source of Paleo:
 COMPLETION REPORT (WELL SUMMARY)
 Borehole MD:
 8831

Well Name: JA006 Paleo Done By: OPERATOR Borehole TVD: 7500

API Well Number: 427134009400 Drilling Operator: APACHE CORPORATION Rkb Elevation: 128

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 189

Public Info Code: Y 29-JAN-2010 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

7650 / 6680 DEF IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A" DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1066

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SA 12	Date of Summary: 08-MAR-1999	First Sample Examined:	0
Lease Number: G14590	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14131
Well Name: 003	Paleo Done By: OPERATOR	Borehole TVD:	13099
API Well Number: 177314007100	Drilling Operator: IP PETROLEUM COMPANY INC	Rkb Elevation:	88
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	35
Public Info Code: Y 30-JUN-2008	Ecozone Ea MMS:	Paleo ID:	001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7180 / 7084	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
9870 / 9409	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
10480 / 9925	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT
12470 / 11654	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1067

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 23 Date of Summary: 18-JUN-1998 First Sample Examined: 4510 Source of Paleo: OPERATOR Lease Number: 00778 **Borehole MD:** 20716 Well Name: J001 Paleo Done By: OPERATOR **Borehole TVD:** 19202 Drilling Operator: PENNZOIL EXPLORATION AND PRODUCTION COMPAN **API Well Number:** 177074077300 **Rkb Elevation:** 75 Paleo Report Num: 1 of 1 **Sample Range:** 4510 - 20433 79 Water Depth: Public Info Code: Y 26-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4510 / 4509	DEF	AT first sample examined	DEF	AT	1
5020 / 5019	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	1
5230 / 5229	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	1
7690 / 7689	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	1
7810 / 7809	DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	1
8200 / 8199	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	1
9730 / 9729	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	ΑT	1
10420 / 10419	DEF	AT	DEF	ΑT	2
10930 / 10929	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	ΑT	2
11680 / 11679	DEF	AT	DEF	AT	3
12790 / 12786	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	ΑT	3
13330 / 13314	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	ΑT	3
13720 / 13690	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	ΑT	3
13900 / 13861	DEF	AT	DEF	ΑT	4
16300 / 15779	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	ΑT	4
18820 / 17716	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	ΑT	4
20380 / 18940	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	4
20433 / 18981	DEF	AT last sample examined	DEF	ΑT	4

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1068

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 27 Date of Summary: 19-OCT-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G01187 **Borehole MD:** 12326 Well Name: A012 Paleo Done By: OPERATOR **Borehole TVD:** 10839 **Drilling Operator:** TAYLOR ENERGY COMPANY **API Well Number:** 177074077800 **Rkb Elevation:** 112 93 Water Depth:

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

**Ecozone Eq MMS:** Public Info Code: Y 04-OCT-2009 Paleo ID: 001

<u>MD/TVD</u>	Paleo Top Description	<u>Ecozone</u>
8490 / 7622	POS AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT
10840 / 9575	DEF AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1069

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

0

81

84

14630

14590

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 35 Date of Summary: 28-JUN-2001 First Sample Examined:

Lease Number: G21614 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 001 Paleo Done By: OPERATOR

API Well Number: 177074081100 Drilling Operator: REMINGTON OIL AND GAS CORPORATION Rkb Elevation:

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 22-JUN-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

14288 / 14249 DEF IN Upper Miocene (Tortonian) Robulus "E" DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1070

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

0

90

92

001

14920

14850

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 39 Date of Summary: 25-MAR-1999 First Sample Examined:

Lease Number: G16320 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR

API Well Number: 177074077000 Drilling Operator: EQUITABLE PRODUCTION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 14-MAR-2008 Ecozone Eq MMS: Paleo ID:

Remark:

MD / TVDPaleo Top DescriptionEcozone11300 / 11296DEF AT Upper Miocene (Messinian) Textularia "X"DEF AT

12590 / 12578 DEF AT Upper Miocene (Tortonian) Robulus "E" DEF AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1071

Paleo ID:

0

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 39 Date of Summary: 16-JUL-1999

First Sample Examined: **Borehole MD:** 11220

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16320

Paleo Done By: OPERATOR **Borehole TVD:** 10201

**Drilling Operator:** EQUITABLE PRODUCTION COMPANY **API Well Number:** 177074077900

**Rkb Elevation:** 88 0 - 0 Sample Range: Water Depth: 94

Paleo Report Num: 1 of 1 Public Info Code: Y 03-MAR-2009 **Ecozone Eq MMS:** 

Remark:

Well Name: C001

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Lower Pliocene (Zanclian) Buliminella 1 DEF AT 8974 / 8249

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1072

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 72	Date of Summary: 10-SEP-1999	First Sample Examined:	0
Lease Number: G01204	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9380
Well Name: C009	Paleo Done By: OPERATOR	Borehole TVD:	8033
API Well Number: 177084086201	Drilling Operator: TAYLOR ENERGY COMPANY	Rkb Elevation:	115
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	137
Public Info Code: Y 07-SEP-2009	Ecozone Eq MMS:	Paleo ID:	001

MD / TVD		Paleo Top Description	Ecozo	
6310 / 5540	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT	
7810 / 6758	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT	

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1073

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 72	Date of Summary: 07-JUL-1999	First Sample Examined:	0
Lease Number: G01204	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	6409
Well Name: C010	Paleo Done By: OPERATOR	Borehole TVD:	6203
API Well Number: 177084086500	Drilling Operator: TAYLOR ENERGY COMPANY	Rkb Elevation:	109
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	137
Public Info Code: Y 09-MAR-2009	Ecozone Eg MMS:	Paleo ID:	001

<u> </u>		Paleo Top Description		<u>Ecozone</u>
4090 / 4087	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT
5720 / 5604	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
5990 / 5840	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 1074

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 72	Date of Summary: 14-MAY-1999	First Sample Examined:	0
Lease Number: G01204	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	6504
Well Name: C011	Paleo Done By: OPERATOR	Borehole TVD:	6439
<b>API Well Number: 177084086600</b>	Drilling Operator: TAYLOR ENERGY COMPANY	Rkb Elevation:	107
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	137
Public Info Code: Y 03-MAY-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u> </u>		Paleo Top Description		<u>Ecozone</u>
5010 / 5004	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT
5700 / 5670	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT
6230 / 6177	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1075

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 73	Date of Summary: 27-FEB-1998	First Sample Examined:	4228
Lease Number: G17935	Source of Paleo: OPERATOR	Borehole MD:	12467
Well Name: D002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	11458
API Well Number: 177084084400	<b>Drilling Operator:</b> TAYLOR ENERGY COMPANY	Rkb Elevation:	136
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 4228 - 12467	Water Depth:	137
Public Info Code: Y 22-FEB-2008	Ecozone Ea MMS: Y	Paleo ID:	001

#### Remark:

MD/TVD		Paleo Top Description		Ecoz	<u>:one</u>
4228 / 4089	DEF	AT first sample examined	DEF	AT	2
4620 / 4436	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	3
5040 / 4808	DEF	AT sample gap top	POS	AT	3
5670 / 5362	DEF	AT sample gap bottom	DEF	AT	3
5820 / 5495	POS	IN Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	3
8040 / 7481	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	3
9600 / 8872	DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	3
11190 / 10271	POS	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	4
12467 / 11458	DEF	AT last sample examined	DEF	AT	4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1076

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 166 Date of Summary: 02-APR-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G21624 **Borehole MD:** 11107 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 6990 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number: 177084088800 Rkb Elevation:** 90 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 261

Remark:

Public Info Code: Y 07-JAN-2008

MD / TVD		Paleo Top Description		<b>Ecozone</b>
1820 / 1647	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF A	<b>4</b> Τ
9010 / 5349	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF A	ΑT

**Ecozone Eq MMS:** 

GEOLOGIC 02-FEB-2011 PAGE: 1077

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 238 8600 Date of Summary: 26-MAY-2000 First Sample Examined: Lease Number: 00310 Source of Paleo: OPERATOR 12862 **Borehole MD:** Well Name: 204 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 11890 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177074079100 **Rkb Elevation:** 90 **Sample Range:** 8600 - 11675 Paleo Report Num: 1 of 1 Water Depth: 18 Public Info Code: Y 13-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD/	TVD		Paleo Top Description		Ecoz	<u>zone</u>
8600 /	8590	DEF	AT first sample examined	DEF	IN	2
8601 /	8591	DEF	IN Upper Miocene (Tortonian) Bigenerina "B"	DEF	IN	2
8644 /	8632	DEF	AT sand	DEF	AT	2
8645 /	8633	DEF	AT local marker foram increase	DEF	AT	2
8690 /	8676	DEF	AT	DEF	IN	1
8825 /	8801	DEF	AT	DEF	AT	2
8870 /	8841	DEF	AT	DEF	IN	2
9140 /	9069	DEF	AT pyrite	DEF	AT	2
9185 /	9104	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
9275 /	9172	DEF	AT	DEF	IN	2
9320 /	9205	DEF	AT local marker foram increase	DEF	IN	2
9455 /	9304	DEF	AT sand	DEF	AT	2
9590 /	9403	DEF	AT Upper Miocene (Tortonian) Cibicides inflata	DEF	AT	3
9635 /	9437	DEF	AT limestone	DEF	AT	3
9770 /	9538	DEF	AT	DEF	IN	2
9815 /	9572	DEF	AT	DEF	AT	2
9905 /	9640	DEF	IN Upper Miocene (Tortonian) Cibicides inflata	DEF	IN	2
9995 /	9708	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	3
10085 /	9773	DEF	AT local marker planktic foram increase	DEF	AT	3
10220 /	9866	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	3
10310 /	9929	DEF	AT	DEF	IN	2
10355 /	9961	DEF	AT local marker foram increase	DEF	IN	2

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 1078

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 238 8600 Date of Summary: 26-MAY-2000 First Sample Examined: Lease Number: 00310 Source of Paleo: OPERATOR 12862 **Borehole MD:** Well Name: 204 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 11890 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177074079100 **Rkb Elevation:** 90 **Sample Range:** 8600 - 11675 Paleo Report Num: 1 of 1 Water Depth: 18 Public Info Code: Y 13-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD		Paleo Top Description		Ecozo	one
10400 / 9992	DEF	AT sample gap top	POS I	IN	2
10625 / 10151	DEF	AT sample gap bottom	DEF /	AT	2
10670 / 10183	DEF	AT drilling material	DEF /	AT	2
10715 / 10215	DEF	AT	DEF I	IN	2
10850 / 10312	DEF	AT drilling material	DEF /	AT	2
10940 / 10377	DEF	AT	DEF I	IN	2
10985 / 10410	DEF	AT sample gap top	POS I	IN	2
11075 / 10476	DEF	AT sample gap bottom	DEF /	AT	2
11120 / 10509	DEF	AT sample gap top	DEF /	AT	2
11389 / 10704	DEF	AT sample gap bottom	DEF I	IN	2
11390 / 10705	POS	AT Middle Miocene (Serravallian) Textularia "W"	DEF I	IN	2
11435 / 10737	DEF	AT sample gap top	POS I	IN	2
11515 / 10795	DEF	AT sample gap bottom	DEF I	IN	2
11635 / 10884	DEF	AT siltstone	DEF /	AT	2
11675 / 10914	DEF	AT last sample examined	DEF /	AT	2

GEOLOGIC 02-FEB-2011 PAGE: 1079

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 251 10980 Date of Summary: 21-JUL-2009 First Sample Examined: Lease Number: G24880 Source of Paleo: OPERATOR 25488 **Borehole MD:** Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 25431 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177074090101 **Rkb Elevation:** 132 **Sample Range:** 10980 - 25488 25 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 20-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		Ec	<u>ozone</u>
10980 / 10978	DEF	AT first sample examined	DEF	AT	3
10981 / 10979	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
11130 / 11128	DEF	AT	DEF	AT	4
11270 / 11268	POS	AT maximum flooding surface	DEF	AT	4
11280 / 11278	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
11969 / 11967	POS	AT maximum flooding surface	DEF	AT	4
11970 / 11968	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
13869 / 13867	POS	AT maximum flooding surface	DEF	AT	4
13870 / 13868	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
14350 / 14347	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	4
14500 / 14497	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
14799 / 14796	POS	AT maximum flooding surface	DEF	AT	5
14800 / 14797	DEF	AT	DEF	AT	5
14830 / 14827	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	IN	5
14860 / 14857	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
15220 / 15217	POS	AT maximum flooding surface	DEF	AT	6
15310 / 15307	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	6
15490 / 15487	DEF	AT	DEF	AT	4
15760 / 15757	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	4
16090 / 16087	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	4
16150 / 16147	POS	AT maximum flooding surface	DEF	AT	4
16240 / 16237	DEF	AT	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE: 1080

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 251 Date of Summary: 21-JUL-2009 First Sample Examined: 10980 Lease Number: G24880 Source of Paleo: OPERATOR **Borehole MD:** 25488 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 25431 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177074090101 **Rkb Elevation:** 132 25

> Paleo Report Num:
>  1 of 1
>  Sample Range:
>  10980 - 25488
>  Water Depth:
>  25
>
>
>  Public Info Code:
>  Y 20-APR-2010
>  Ecozone Eq MMS:
>  Y
>  Paleo ID:
>  001

MD/TVD		Paleo Top Description		Ē	cozone
16690 / 16687	DEF	AT	DEF	AT	4
17200 / 17197	DEF	IN Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	4
17840 / 17837	POS	AT maximum flooding surface	DEF	AT	4
17860 / 17857	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	5
18580 / 18576	POS	AT maximum flooding surface	DEF	AT	5
19050 / 19046	POS	AT maximum flooding surface	DEF	AT	5
19060 / 19056	DEF	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	AT	5
19180 / 19176	POS	AT Lower Miocene (Burdigalian) Catapsydrax stainforthi	DEF	AT	5
19780 / 19776	POS	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	5
19800 / 19796	POS	AT unconformity	DEF	AT	5
19930 / 19926	POS	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	5
19940 / 19936	POS	AT maximum flooding surface	DEF	AT	5
21170 / 21165	POS	AT maximum flooding surface	DEF	AT	5
21880 / 21874	POS	AT maximum flooding surface	DEF	AT	5
21910 / 21904	DEF	AT	DEF	AT	4
24820 / 24777	DEF	AT	DEF	AT	5
25488 / 25425	DEF	AT last sample examined	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1081

11800

11800

23

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 253 Date of Summary: 22-OCT-2001 First Sample Examined: 0

Lease Number: G08690 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 003 Paleo Done By: OPERATOR

API Well Number: 177074082200 Drilling Operator: HOUSTON EXPLORATION COMPANY Rkb Elevation: 121

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 10-JUL-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

10000 / 9999 DEF AT Upper Miocene (Tortonian) Textularia "L" DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1082

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 260 9990 Date of Summary: 16-JUL-2009 First Sample Examined: Lease Number: G31360 Source of Paleo: OPERATOR 16250 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16071 **Drilling Operator: NEWFIELD EXPLORATION COMPANY API Well Number: 177074090001 Rkb Elevation:** 89 **Sample Range:** 9990 - 15925 Paleo Report Num: 1 of 1 Water Depth: 24 Public Info Code: Y 06-JUN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			<u>Ec</u>	ozone
9990 / 9986	DEF	AT first sample examined	DI	ΞF	AT	3
9991 / 9987	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DI	ΞF	AT	3
10410 / 10406	POS	AT maximum flooding surface	Di	ΞF	AT	4
11340 / 11335	DEF	AT	DI	ΞF	AT	3
11760 / 11752	POS	AT maximum flooding surface	DI	ΞF	AT	3
11880 / 11870	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DI	ΞF	AT	3
12090 / 12072	DEF	AT	DI	ΞF	AT	4
12270 / 12244	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DI	ΞF	AT	4
12280 / 12253	POS	AT maximum flooding surface	DI	ΞF	AT	4
12600 / 12558	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DI	ΞF	AT	4
14200 / 14083	POS	AT maximum flooding surface	DI	ΞF	AT	4
14250 / 14131	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DI	ΞF	AT	4
14460 / 14331	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DI	ΞF	AT	4
14730 / 14588	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DI	ΞF	AT	5
14790 / 14645	DEF	AT	DI	ΞF	AT	6
14849 / 14701	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DI	ΞF	AT	6
14850 / 14702	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DI	ΞF	AT	6
14900 / 14750	POS	AT maximum flooding surface	DI	ΞF	AT	6
15180 / 15017	DEF	AT Middle Miocene (Serravallian) Cibicides opima	Di	ΞF	AT	6
15330 / 15162	DEF	AT	Di	ΞF	IN	5
15925 / 15747	DEF	AT last sample examined	DI	ΞF	IN	5

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1083

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SM 269 Date of Summary: 25-SEP-2000 First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G02311 **Borehole MD:** 11192

Well Name: F001 Paleo Done By: OPERATOR

**Borehole TVD:** 10797 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 177074080400 **Rkb Elevation:** 90

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 36

Public Info Code: Y 21-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Miocene (Tortonian) Robulus "E" 10396 / 10115 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1084

**Borehole MD:** 

**Borehole TVD:** 

0

42

14820

13975

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SM 280 Date of Summary: 13-FEB-2001 First Sample Examined:

Lease Number: G14456 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: G002 Paleo Done By: OPERATOR

API Well Number: 177074080700 Drilling Operator: ANADARKO E&P COMPANY LP Rkb Elevation: 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth:

Public Info Code: Y 06-JAN-2011 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

14263 / 13571 DEF AT Upper Miocene (Tortonian) Cyclammina 3 DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1085

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	CM 200	Data of Cummony, 22 IIII 1009	First Comple Evenined	14600
Area block:	SIVI 200	Date of Summary: 23-JUL-1998	First Sample Examined:	14000
Lease Number:	G02316	Source of Paleo: OPERATOR	Borehole MD:	16589
Well Name:	CB005	Paleo Done By: OPERATOR	Borehole TVD:	15344
<b>API Well Number:</b>	177074074800	Drilling Operator: CHEVRON USA INC	Rkb Elevation:	146
Paleo Report Num:	1 of 1	Sample Range: 11000 - 16589	Water Depth:	60
Public Info Code:	Y 05-FEB-2008	Ecozone Eq MMS: Y	Paleo ID:	001

MD / TVD	Paleo Top Description		<u>Ec</u>	<u>ozone</u>
14600 / 13620	DEF AT first sample examined	DEF	AT	3
14750 / 13750	DEF IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	1
15140 / 14090	DEF AT	DEF	AT	2
15920 / 14759	DEF AT	DEF	AT	3
16130 / 14942	DEF AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	3
16190 / 14994	DEF IN Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	3
16589 / 15344	DEF AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1086

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	SM 288	Date of Summary: 23-JUL-1998	First Sample Examined:	10900
Lease Number:	G02316	Source of Paleo: OPERATOR	Borehole MD:	17170
Well Name:	CD001	Paleo Done By: OPERATOR	Borehole TVD:	16551
<b>API Well Number:</b>	177074074602	Drilling Operator: CHEVRON USA INC	Rkb Elevation:	88
Paleo Report Num:	1 of 1	Sample Range: 10900 - 17170	Water Depth:	58
Public Info Code:	Y 22-APR-2008	Ecozone Ea MMS: Y	Paleo ID:	001

MD / TVD		Paleo Top Description		Eco	ozone
14770 / 14409	DEF	AT first sample examined	DEF	AT	3
15340 / 14919	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	3
15370 / 14946	POS	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	3
15490 / 15053	DEF	AT	DEF	AT	2
16570 / 16008	DEF	AT	DEF	AT	3
17170 / 16552	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1087

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SP 57 Date of Summary: 23-JUL-1998 First Sample Examined: 5270 Lease Number: G02940 Source of Paleo: OPERATOR **Borehole MD:** 9379 Well Name: B013 Paleo Done By: OPERATOR **Borehole TVD:** 7968 **Drilling Operator: CHEVRON USA INC API Well Number:** 177214026502 **Rkb Elevation:** 123 Paleo Report Num: 1 of 1 **Sample Range:** 5270 - 9380 190 Water Depth: Public Info Code: Y 06-FEB-2008 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
5270 / 5193	DEF	AT first sample examined	DEF	AT	
5271 / 5194	DEF	IN Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	
7580 / 6743	DEF	AT faunal change (no faunal increase)	DEF	AT	2
8270 / 7154	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	POS	AT	2
8300 / 7174	DEF	AT faunal change (no faunal increase)	DEF	AT	2
8480 / 7304	DEF	AT faunal change (no faunal increase)	DEF	AT	3
9230 / 7861	DEF	AT faunal change (no faunal increase)	DEF	AT	2
9380 /	DEF	AT last sample examined	DEF	AT	2

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1088

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SP 87	Date of Summary: 25-JUN-1999	First Sample Examined:	0
Lease Number: G10894	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13600
Well Name: D010	Paleo Done By: OPERATOR	Borehole TVD:	11047
<b>API Well Number:</b> 177224022700	Drilling Operator: MARATHON OIL COMPANY	Rkb Elevation:	145
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	372
Public Info Code: Y 22-JUN-2009	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
8750 / 7247	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
11108 / 9089	DEF AT Upper Miocene (Messinian) Textularia "X"	DEF AT
12232 / 9990	DEF AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1089

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 32 Date of Summary: 14-AUG-2000 First Sample Examined: 7300 Lease Number: 00335 Source of Paleo: OPERATOR **Borehole MD:** 10203 10154 Well Name: 024 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177114131700 **Rkb Elevation:** 134 Paleo Report Num: 1 of 2 **Sample Range:** 7300 - 9540 17 Water Depth: Public Info Code: Y 28-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7300 / 7299	DEF	AT first sample examined	DEF	AT
7350 / 7349	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
8070 / 8069	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
9240 / 9235	POS	AT reworked material	DEF	AT
9540 / 9525	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1090

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 32 Date of Summary: 14-AUG-2000 First Sample Examined: 7300 Lease Number: 00335 Source of Paleo: OPERATOR **Borehole MD:** 10203 10154 Well Name: 024 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number: 177114131700 Rkb Elevation:** 134 Paleo Report Num: 2 of 2 **Sample Range:** 7300 - 10200 17 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 28-AUG-2010 Paleo ID: 004

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		<b>Ecozone</b>
7300 / 7299	DEF AT first sample examined	DEF AT	Γ 1
7920 / 7919	DEF AT	DEF AT	Γ 2
8010 / 8009	DEF AT	DEF AT	Γ 3
8490 / 8489	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT	Г 3
9000 / 8999	POS AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT	Γ 3
9210 / 9205	DEF AT Upper Miocene (Tortonian) Amphistegina "E"	DEF AT	Γ 3
9780 / 9756	POS AT Upper Miocene (Tortonian) Discorbis 12	DEF AT	Γ 3
10200 / 10152	DEF AT last sample examined	DEF AT	Г 3

GEOLOGIC 02-FEB-2011

PAGE: 1091

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 32	Date of Summary: 04-DEC-2000	First Sample Examined:	9390
Lease Number: 00335	Source of Paleo: OPERATOR	Borehole MD:	10304
Well Name: 024	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	9527
API Well Number: 177114131701	Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION	Rkb Elevation:	134
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 9390 - 10304	Water Depth:	19
Public Info Code: Y 28-SEP-2010	Ecozone Eg MMS:	Paleo ID:	003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> </u>		Paleo Top Description		<u>Ecozone</u>
9390 / 8740	DEF	AT first sample examined	DEF	AT
9630 / 8947	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
10110 / 9358	DEF	IN Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
10304 / 9527	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1092

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 32 Date of Summary: 04-DEC-2000 7900 First Sample Examined: Lease Number: 00335 Source of Paleo: OPERATOR 10304 **Borehole MD:** Well Name: 024 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9527 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177114131701 **Rkb Elevation:** 134 Paleo Report Num: 2 of 2 **Sample Range:** 7900 - 10304 Water Depth: 19 Public Info Code: Y 28-SEP-2010 **Ecozone Eq MMS:** Y Paleo ID: 004

Remark: Foram species abundance and diversity chart available, see report for details

MD/	TVD	Paleo Top Description		<u>Ecc</u>	ozone
7900 /	7469 DI	F AT first sample examined	DEF	AT	2
8610 /	8082 DI	F AT	DEF	AT	3
8790 /	8233 PC	S AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	3
9190 /	8569 DI	F IN salt	POS	AT	3
9540 /	8869 DI	F AT base of salt	POS	AT	3
9930 /	9204 PC	S AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	3
10230 /	9462 DI	F AT Upper Miocene (Tortonian) Amphistegina "E"	DEF	AT	3
10304 /	9527 DI	F AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1093

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 37	Date of Summary: 30-AUG-2005	First Sample Examined: 10130	
Lease Number: G26049	Source of Paleo: OPERATOR	Borehole MD: 11835	
Well Name: 001	Paleo Done By: BANE AND SCHUNICK	Borehole TVD: 11834	
API Well Number: 177114146100	Drilling Operator: HUNT OIL COMPANY	Rkb Elevation: 99	
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 10130 - 11780	Water Depth: 10	
Public Info Code: Y 30-APR-2009	Ecozone Ea MMS: Y	<b>Paleo ID:</b> 001	

### Remark:

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
10130 / 10130	DEF	AT first sample examined	DEF	AT	1
10190 / 10190	DEF	AT local marker benthic foram increase	POS	AT	2
10400 / 10400	DEF	AT	DEF	AT	2
10460 / 10460	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	3
10700 / 10700	DEF	AT	DEF	IN	2
10790 / 10789	DEF	AT	POS	AT	2
11000 / 10999	DEF	AT	DEF	AT	2
11060 / 11059	DEF	AT	POS	AT	2
11120 / 11119	DEF	AT	DEF	AT	2
11180 / 11179	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	POS	AT	2
11300 / 11299	DEF	AT	DEF	IN	2
11330 / 11329	DEF	AT	DEF	AT	2
11780 / 11779	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC 02-FEB-2011

PAGE: 1094

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 37 Date of Summary: 30-AUG-2005 First Sample Examined: 11680 Lease Number: G26049 Source of Paleo: OPERATOR **Borehole MD:** 14200 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 14167 **Drilling Operator: HUNT OIL COMPANY API Well Number:** 177114146101 **Rkb Elevation:** 99 Paleo Report Num: 1 of 1 **Sample Range:** 11680 - 14200 Water Depth: 10 Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD / TVD		Paleo Top Description			<u>Ec</u>	<u>ozone</u>
11680 / 11649	DEF	AT first sample examined	DE	F	AT	2
11739 / 11708	DEF	AT local marker planktic foram increase	DE	F	AT	2
11740 / 11709	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DE	F	AT	2
11830 / 11798	DEF	AT local marker benthic foram increase	DE	F	AT	2
12010 / 11978	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DE	F	AT	2
12130 / 12098	DEF	AT Upper Miocene (Tortonian) Eponides mansfieldi	DE	F	AT	2
12220 / 12188	DEF	AT	DE	F	AT	3
12310 / 12278	DEF	AT	DE	F	IN	2
12339 / 12307	DEF	AT	DE	F	AT	4
12370 / 12338	DEF	AT	DE	F	AT	2
13000 / 12968	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DE	F	AT	2
13180 / 13148	DEF	AT Arenaceous fauna (local marker)	DE	F	IN	3
13210 / 13178	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DE	F	AT	4
13360 / 13328	DEF	AT	DE	F	AT	5
13420 / 13388	DEF	AT	PC	S	AT	4
13450 / 13418	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DE	F	AT	5
13540 / 13508	DEF	AT Eggerella 3 (local marker)	DE	F	AT	5
13570 / 13538	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DE	F	AT	5
13630 / 13598	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DE	F	AT	5
13660 / 13628	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DE	F	AT	5
13960 / 13928	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DE	F	AT	5
14110 / 14078	DEF	AT local marker planktic foram increase	DE	F	AT	6

GEOLOGIC 02-FEB-2011

PAGE: 1095

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 37 Date of Summary: 30-AUG-2005 11680 First Sample Examined: Lease Number: G26049 Source of Paleo: OPERATOR 14200 **Borehole MD:** Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** 14167 **Drilling Operator: HUNT OIL COMPANY API Well Number:** 177114146101 **Rkb Elevation:** 99 Paleo Report Num: 1 of 1 **Sample Range:** 11680 - 14200 Water Depth: 10 Public Info Code: Y 30-APR-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

MD/TVD		Paleo Top Description		Eco	<u>ozone</u>
14140 / 14108	DEF	AT	DEF	AT	5
14170 / 14138	DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	6
14200 / 14168	DEF	AT last sample examined	DEF	AT	6

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 1096

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 59	Date of Summary: 24-SEP-1998	First Sample Examined:	0
Lease Number: G11977	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	12650
Well Name: 002	Paleo Done By: OPERATOR	Borehole TVD:	12649
API Well Number: 177114126500	<b>Drilling Operator: MURPHY EXPLORATION &amp; PRODUCTIO</b>	Rkb Elevation:	135
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	17
Public Info Code: Y 09-JUN-2008	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

<u> </u>		Paleo Top Description		<u>Ecozone</u>
9753 / 9753	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
10288 / 10288	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
10828 / 10828	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
11512 / 11512	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1097

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 59 Date of Summary: 09-JAN-2001 First Sample Examined: 9000 Source of Paleo: OPERATOR Lease Number: G11977 **Borehole MD:** 13710 13709 Well Name: 003 Paleo Done By: THOMAS REILLY **Borehole TVD: Drilling Operator: MURPHY EXPLORATION & PRODUCTIO API Well Number: 177114133600 Rkb Elevation:** 110 Paleo Report Num: 1 of 1 **Sample Range:** 9000 - 13710 20 Water Depth: Public Info Code: Y 14-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description			Eco:	zone
9000 / 8999	DEF	AT first sample examined	DE	F A	AT	1
9570 / 9569	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DE	F /	AT	3
9750 / 9749	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DE	F /	AT	3
9780 / 9779	DEF	AT	DE	F I	AT	2
10500 / 10499	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DE	F I	AT	2
10890 / 10889	DEF	AT	PO	S i	AT	2
11000 / 10999	DEF	AT	DE	F I	AT	2
11030 / 11029	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DE	F I	AT	2
11270 / 11269	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DE	F I	AT	2
11360 / 11359	DEF	AT Upper Miocene (Tortonian) Amphistegina "E"	DE	F /	AT	2
11570 / 11569	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DE	F I	AT	3
11780 / 11779	DEF	AT	DE	F I	IN	2
11900 / 11899	DEF	AT local marker foram increase	DE	F I	AT	3
12050 / 12049	DEF	AT	DE	F I	IN	2
12463 / 12462	DEF	AT	PO	S I	IN	2
12725 / 12724	DEF	IN Upper Miocene (Tortonian) Discorbis 12	DE	F I	AT	3
12965 / 12964	DEF	AT local marker foram increase	DE	F I	AT	3
13025 / 13024	DEF	AT	PO	S i	AT	3
13165 / 13164	DEF	AT	DE	F 1	AT	3
13650 / 13649	DEF	AT last sample examined	DE	F 7	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1098

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 68	Date of Summary: 13-MAR-1998	First Sample Examined:	5200
Lease Number: G02917	Source of Paleo: OPERATOR	Borehole MD:	10350
Well Name: 009	Paleo Done By: GEORGE J. CONSTANCE, JR.	Borehole TVD:	10349
API Well Number: 177114126000	<b>Drilling Operator: MOBIL OIL EXPLORATION &amp; PRODUC</b>	Rkb Elevation:	84
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 5200 - 10350	Water Depth:	33
Public Info Code: Y 20-JAN-2008	Ecozone Eq MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
5200 /	DEF	AT first sample examined	DEF	AT
6310 /	DEF	AT Arenaceous fauna (local marker)	DEF	AT
6370 /	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT
7360 /	DEF	AT local marker (general)	DEF	AT
9040 /	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
9490 /	DEF	AT local marker foram increase	DEF	AT
10350 /	DEF	AT last sample examined	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1099

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 76 Date of Summary: 27-FEB-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 002 Paleo Done By: OPERATOR

API Well Number: 177114131900 Drilling Operator: NEWFIELD EXPLORATION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 21-AUG-2010 Ecozone Eq MMS:

First Sample Examined: 0
Borehole MD: 10450
Borehole TVD: 10450
Rkb Elevation: 88
Water Depth: 24

Paleo ID:

001

Remark: In=sand

Lease Number: G15276

MD / TVD Paleo Top Description Ecozone

9900 / 9900 DEF IN Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1100

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 79 Date of Summary: 06-OCT-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15277 **Borehole MD:** 11896 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 10700 **Drilling Operator: PETROQUEST ENERGY LLC API Well Number:** 177114132500 **Rkb Elevation:** 92 22

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth:

**Ecozone Eq MMS:** Public Info Code: Y 13-OCT-2010 Paleo ID: 001

Remark:

MD/TVD	Paleo Top Description	<u>Ecozone</u>
11080 / 9885	DEF AT Upper Miocene (Messinian) Textularia "X"	DEF AT
11720 / 10525	DEF AT Upper Miocene (Tortonian) Textularia 6	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1101

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 94 Date of Summary: 06-MAR-2003 First Sample Examined: 12000 Lease Number: G23891 Source of Paleo: OPERATOR **Borehole MD:** 15508 Well Name: AA001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15504 **Drilling Operator: WESTPORT RESOURCES CORPORATION API Well Number: 177114139000 Rkb Elevation:** 88 Paleo Report Num: 1 of 1 **Sample Range:** 12000 - 15508 25 Water Depth: Public Info Code: Y 27-AUG-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco <sub>2</sub>	zone
12000 / 11999	DEF	AT first sample examined	DEF	AT	2
12450 / 12448	DEF	AT	DEF	AT	3
12620 / 12618	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	3
12990 / 12988	DEF	AT	DEF	AT	4
13320 / 13318	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	4
14130 / 14127	DEF	AT	DEF	AT	3
14520 / 14517	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	3
14910 / 14907	DEF	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
15508 / 15504	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1102

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 117 13634 Date of Summary: 13-JUN-2008 First Sample Examined: Lease Number: G24925 Source of Paleo: OPERATOR 18812 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16464 Drilling Operator: BOIS D'ARC OFFSHORE LTD **API Well Number:** 177114151900 **Rkb Elevation:** 109 Paleo Report Num: 1 of 1 **Sample Range:** 13634 - 18532 Water Depth: 49 Public Info Code: Y 25-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
13634 / 13425	DEF	AT first sample examined	POS	AT	4
13918 / 13619	DEF	AT	DEF	AT	4
14105 / 13736	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
14294 / 13846	POS	AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT	4
15055 / 14285	DEF	AT sample gap top	POS	AT	4
17010 / 15415	DEF	AT sample gap bottom	DEF	AT	4
17110 / 15473	DEF	AT sample gap top	POS	AT	4
17585 / 15749	DEF	AT sample gap bottom	DEF	AT	4
17675 / 15801	POS	IN Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	4
18339 / 16186	POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	4
18340 / 16187	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	4
18532 / 16299	DEF	AT last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

PAGE: 1103

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 117 Date of Summary: 12-AUG-2008 First Sample Examined: 16331 Lease Number: G24925 Source of Paleo: OPERATOR 19394 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16655 Drilling Operator: BOIS D'ARC OFFSHORE LTD **API Well Number:** 177114151901 **Rkb Elevation:** 109 Paleo Report Num: 1 of 1 **Sample Range:** 16331 - 19394 Water Depth: 59 Public Info Code: Y 25-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

<u>MD / TVD</u>	Paleo Top Description		Ec	<u>ozone</u>
16331 / 15031	DEF AT first sample examined	DEF	AT	4
16332 / 15032	POS AT out-of-place section	DEF	AT	4
16426 / 15091	POS AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	4
19394 / 16655	DEF AT last sample examined	DEF	AT	4

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1104

**Borehole MD:** 

0

15930

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 126 Date of Summary: 08-JUN-2000 First Sample Examined:

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G12940

Well Name: C001 Paleo Done By: OPERATOR

**Borehole TVD:** 15792 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177114122002 **Rkb Elevation:** 99

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 42

Public Info Code: Y 09-MAY-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT 14993 / 14977

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1105

16660

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 139 Date of Summary: 17-NOV-2000 First Sample Examined: 0

Lease Number:G21115Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:

Well Name: 002 Paleo Done By: OPERATOR Borehole TVD: 15000

API Well Number: 177114131000 Drilling Operator: NEWFIELD EXPLORATION COMPANY Rkb Elevation: 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 60

Public Info Code: Y 23-SEP-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

<u> </u>	Paleo Top Description	<u>Ecozone</u>
13020 / 12695	DEF AT Upper Miocene (Messinian) Textularia "X"	DEF AT
14116 / 13418	DEF AT Upper Miocene (Tortonian) Textularia 6	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1106

**Borehole TVD:** 

0

16720

15032

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:SS139Date of Summary:09-NOV-2000First Sample Examined:Lease Number:G21115Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:

Well Name: A001 Paleo Done By: OPERATOR

API Well Number: 177114130400 Drilling Operator: NEWFIELD EXPLORATION COMPANY Rkb Elevation: 93

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 62

Public Info Code: Y 23-SEP-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12669 / 12550	DEF AT Upper Miocene (Messinian) Textularia "X"	DEF AT
13990 / 13350	DEF AT Upper Miocene (Tortonian) Textularia 6	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1107

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 169 Date of Summary: 23-JUL-1998 First Sample Examined: 10900 Lease Number: 00820 Source of Paleo: OPERATOR **Borehole MD:** 16000 Well Name: H012 Paleo Done By: OPERATOR **Borehole TVD:** 15284 **Drilling Operator: CHEVRON USA INC API Well Number:** 177114125001 **Rkb Elevation:** 87 Paleo Report Num: 1 of 1 **Sample Range:** 10900 - 15970 Water Depth: 56 Ecozone Eq MMS: Y Public Info Code: Y 16-APR-2008 Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
10900 / 10192	DEF	AT first sample examined	DEF	AT	
10901 / 10193	DEF	AT cement	DEF	AT	
10960 / 10250	DEF	AT non-marine sediment	DEF	AT	0
11020 / 10308	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	3
11079 / 10366	DEF	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	3
11080 / 10367	POS	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	3
12430 / 11714	DEF	AT	DEF	AT	4
13510 / 12794	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	4
13810 / 13094	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	4
14770 / 14054	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	4
15016 / 14300	DEF	AT local marker deep water fauna	DEF	AT	4
15970 / 15254	DEF	AT last sample examined	DEF	ΑT	4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1108

6300

**Borehole MD:** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 279 Date of Summary: 30-JUL-2001 First Sample Examined: 0

Lease Number: G16395 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD: 6111

API Well Number: 177124062301 Drilling Operator: HELIS OIL & GAS COMPANY LLC Rkb Elevation: 85

 Paleo Report Num:
 1 of 1
 Sample Range:
 0 - 0
 Water Depth:
 198

 Public Info Code:
 Y 17-JAN-2009
 Ecozone Eq MMS:
 Paleo ID:
 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

5931 / 5773 DEF IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B" DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1109

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 283 Date of Summary: 22-JUL-1998 First Sample Examined: 3750 Lease Number: G15299 Source of Paleo: OPERATOR 14605 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14600 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 177124058600 **Rkb Elevation:** 103 Paleo Report Num: 1 of 1 **Sample Range:** 3750 - 14605 187 Water Depth: Public Info Code: Y 11-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD /	<u>TVD</u>		Paleo Top Description		Ecoz	<u>:one</u>
3750 /	3748	DEF	AT first sample examined	DEF	IN	3
5250 /	5248	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
5790 /	5788	DEF	AT Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	4
5820 /	5818	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
6750 /	6748	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	5
6960 /	6958	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
7050 /	7048	DEF	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	5
7260 /	7258	DEF	AT local marker foram decrease	DEF	AT	5
7500 /	7498	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	AT	5
7830 /	7828	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
8100 /	8098	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
9000 /	8998	DEF	AT sample gap top	POS	AT	5
9990 /	9988	DEF	AT sample gap bottom	DEF	AT	5
12120 / 1	12118	POS	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
14605 / 1	14601	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1110

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 296 4560 Date of Summary: 25-JUL-2000 First Sample Examined: Lease Number: G15303 Source of Paleo: OPERATOR **Borehole MD:** 12846 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12187 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177124061200 **Rkb Elevation:** 96 Paleo Report Num: 1 of 2 **Sample Range:** 4560 - 12846 Water Depth: 264 Public Info Code: Y 17-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
4560 / 4559	DEF	AT first sample examined	DEF	AT	3
4770 / 4769	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
5190 / 5189	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
5400 / 5398	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	4
5760 / 5754	DEF	AT pyrite	DEF	AT	3
6930 / 6829	DEF	AT Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	3
7290 / 7153	POS	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
7349 / 7206	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
7350 / 7207	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
8040 / 7830	POS	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
8160 / 7938	DEF	AT faunal change (no faunal increase)	DEF	AT	3
9449 / 9087	DEF	AT pyrite	DEF	AT	4
9450 / 9088	POS	IN Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	4
10710 / 10202	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
11100 / 10549	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
11160 / 10603	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	4
11190 / 10630	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
11249 / 10684	DEF	AT Bathysiphon fauna	DEF	AT	5
11250 / 10685	DEF	AT Upper Pliocene (Gelasian) Globorotalia pertenuis	DEF	AT	5
11279 / 10712	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
11280 / 10713	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
11340 / 10768	DEF	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 1111

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 296 Date of Summary: 25-JUL-2000 First Sample Examined: 4560 Lease Number: G15303 Source of Paleo: OPERATOR **Borehole MD:** 12846 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12187 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177124061200 **Rkb Elevation:** 96 Paleo Report Num: 1 of 2 **Sample Range:** 4560 - 12846 264 Water Depth:

Public Info Code: Y 17-AUG-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u> c	ozone
11430 / 10851	DEF	AT Bathysiphon fauna	DEF	IN	5
11520 / 10934	DEF	AT Upper Pliocene (Piacenzian) Cyclammina sp.	DEF	IN	5
11580 / 10990	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	IN	5
11639 / 11044	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	5
11640 / 11045	DEF	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	IN	5
11670 / 11073	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	6
11700 / 11101	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
11729 / 11128	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	AT	6
11730 / 11129	DEF	AT Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	6
11759 / 11156	DEF	AT Lower Pliocene (Zanclian) Globorotalia plesiotumida (acme)	DEF	AT	6
11760 / 11157	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
11940 / 11326	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	6
12179 / 11550	DEF	AT Eggerella sp. (local marker)	DEF	AT	6
12180 / 11551	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	6
12240 / 11608	DEF	AT pyrite	DEF	AT	6
12330 / 11693	DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
12450 / 11807	DEF	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	AT	6
12480 / 11836	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	6
12659 / 12007	DEF	AT Bathysiphon fauna	DEF	AT	6
12660 / 12008	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	6
12840 / 12180	DEF	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	AT	6
12846 / 12186	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

PAGE: 1112

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 296 Date of Summary: 25-JUL-2000 4560 First Sample Examined: Lease Number: G15303 Source of Paleo: OPERATOR 12846 **Borehole MD:** Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12187 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number: 177124061200 Rkb Elevation:** 96 Paleo Report Num: 2 of 2 **Sample Range:** 4560 - 12860 Water Depth: 264 Public Info Code: Y 17-AUG-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
4560 / 4559	DEF A	Γ first sample examined	DEF	AT
4561 / 4560	DEF IN	Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
5190 / 5189	DEF A	Γ Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
5250 / 5249	DEF A	Г Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5820 / 5813	POS AT	Γ Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7290 / 7153	DEF A	Γ Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
8070 / 7857	DEF A	Γ Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
11070 / 10522	POS AT	Г Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
11190 / 10630	DEF A	Г Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
11310 / 10740	DEF A	Γ Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
11430 / 10851	DEF A	Γ Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
11760 / 11157	DEF A	Г Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
12090 / 11467	DEF A	Г Upper Miocene (Messinian) Discoaster berggrenii "В"	DEF	AT
12600 / 11951	POS AT	Г Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
12846 / 12186	DEF A	Γ last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1113

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: SS 296	Date of Summary: 28-AUG-2000	First Sample Examined:	4410
Lease Number: G15303	Source of Paleo: OPERATOR	Borehole MD: 1	0345
Well Name: A002	Paleo Done By: PALEO-DATA, INC.	Borehole TVD: 1	0011
<b>API Well Number:</b> 177124061400	Drilling Operator: MCMORAN OIL & GAS LLC	Rkb Elevation:	96
Paleo Report Num: 1 of 2	<b>Sample Range:</b> 4410 - 10345	Water Depth:	264
Public Info Code: Y 17-SEP-2010	Ecozone Ea MMS: Y	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<u>Ecc</u>	<u>ozone</u>
4410 / 4410	DEF	AT first sample examined	DEF	AT	3
4411 / 4411	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
8280 / 8148	DEF	AT	DEF	AT	4
8310 / 8176	POS	IN Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
8340 / 8203	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
8610 / 8451	DEF	AT	DEF	AT	3
10345 / 10011	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 1114

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 296 4410 Date of Summary: 28-AUG-2000 First Sample Examined: Lease Number: G15303 Source of Paleo: OPERATOR 10345 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10011 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177124061400 **Rkb Elevation:** 96 Paleo Report Num: 2 of 2 **Sample Range:** 4410 - 10345 Water Depth: 264 Public Info Code: Y 17-SEP-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
4410 / 4410	DEF	AT first sample examined	DEF	AT
4411 / 4411	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
5190 / 5190	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
5250 / 5250	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5820 / 5819	POS	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
7110 / 7075	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
8280 / 8148	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
10345 / 10011	DEF	AT last sample examined	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1115

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> First Sample Examined: Area Block: SS 301 Date of Summary: 10-JUN-1998 0 11417

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G10794 **Borehole MD:** 

Well Name: A003 Paleo Done By: OPERATOR **Borehole TVD:** 10197

**Drilling Operator: PETROBRAS AMERICA INC API Well Number:** 177124058400 **Rkb Elevation:** 126

0 - 0 261 Paleo Report Num: 1 of 1 Sample Range: Water Depth: Public Info Code: Y 24-MAY-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD **Paleo Top Description Ecozone** 

DEF AT Upper Pliocene (Gelasian) Cristellaria "S" DEF AT 10740 / 9550

GEOLOGIC 02-FEB-2011

PAGE: 1116

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: SS 317 6000 Date of Summary: 01-JUL-2008 First Sample Examined: Lease Number: G24950 Source of Paleo: OPERATOR 10787 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 10785 **Drilling Operator:** W & T OFFSHORE INC **API Well Number:** 177124066900 **Rkb Elevation:** 121 **Sample Range:** 6000 - 10787 Paleo Report Num: 1 of 1 Water Depth: 300 Public Info Code: Y 01-DEC-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
6000 / 5999	DEF	AT first sample examined	DEF	AT	4
6359 / 6358	POS	AT maximum flooding surface	DEF	AT	4
6360 / 6359	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	4
6450 / 6449	DEF	AT	DEF	AT	3
7800 / 7799	DEF	AT	DEF	AT	4
7860 / 7859	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
8580 / 8579	POS	AT maximum flooding surface	DEF	AT	5
8820 / 8819	POS	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	5
9150 / 9149	POS	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	5
9780 / 9779	POS	AT maximum flooding surface	DEF	AT	5
9810 / 9809	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
9960 / 9958	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
10378 / 10376	POS	AT maximum flooding surface	DEF	AT	5
10379 / 10377	DEF	AT Upper Pliocene (Gelasian) Globorotalia exilis	DEF	AT	5
10380 / 10378	POS	AT Upper Pliocene (Piacenzian) Valvulina "H" / Alvarezina sinuata	DEF	AT	5
10678 / 10676	POS	AT maximum flooding surface	DEF	AT	5
10679 / 10677	POS	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5
10680 / 10678	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10710 / 10708	POS	AT unconformity	DEF	AT	5
10738 / 10736	POS	AT maximum flooding surface	DEF	AT	5
10739 / 10737	DEF	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	5
10740 / 10738	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1117

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:SS 317Date of Summary:01-JUL-2008First Sample Examined:6000Lease Number:G24950Source of Paleo:OPERATORBorehole MD:10787Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:10785API Well Number:177124066900Drilling Operator:W & T OFFSHORE INCRkb Elevation:121

 API Well Number:
 177124066900
 Drilling Operator:
 W & T OFFSHORE INC
 Rkb Elevation:
 121

 Paleo Report Num:
 1 of 1
 Sample Range:
 6000 - 10787
 Water Depth:
 300

Public Info Code: Y 01-DEC-2008 Ecozone Eq MMS: Y Paleo ID:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10770 / 10768	POS AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF AT 5
10787 / 10785	DEF AT last sample examined	DEF AT 5

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1118

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 11 Date of Summary: 26-JUL-2001 First Sample Examined: 0

Lease Number:G13925Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:12415Well Name:001Paleo Done By:OPERATORBorehole TVD:12065

API Well Number: 177154094900 Drilling Operator: BOIS D'ARC OFFSHORE LTD Rkb Elevation: 86

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 30

Public Info Code: Y 05-JUN-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

8800 / 8799 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1119

14443

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:ST11Date of Summary:07-SEP-2000First Sample Examined:0Lease Number:G13925Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:14449

Well Name: 002 Paleo Done By: OPERATOR Borehole TVD:

API Well Number: 177154100601 Drilling Operator: BOIS D'ARC OPERATING CORPORATION Rkb Elevation: 96

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 30

Public Info Code: Y 23-JUL-2010 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

14040 / 14035 DEF IN Upper Miocene (Tortonian) Discorbis 12 DEF AT

GEOLOGIC

PAGE: 1120

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 26 Date of Summary: 01-NOV-2000 10500 First Sample Examined: Lease Number: G01870 Source of Paleo: OPERATOR 12571 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: D033 **Borehole TVD:** 12084 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177154102800 **Rkb Elevation:** 103 Paleo Report Num: 1 of 1 **Sample Range:** 10500 - 12570 Water Depth: 55 Public Info Code: Y 14-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Pimento Prospect

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
10500 / 10013	DEF	AT first sample examined	DEF	AT	
10560 / 10073	DEF	IN Upper Miocene (Tortonian) Robulus "E"	DEF	IN	1
10590 / 10103	DEF	AT	DEF	AT	2
10650 / 10163	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	2
10770 / 10283	DEF	AT	DEF	IN	1
10860 / 10372	POS	AT local marker (general)	DEF	IN	2
10920 / 10432	DEF	AT	DEF	IN	1
11010 / 10522	DEF	AT	DEF	AT	0
11040 / 10552	DEF	AT	DEF	IN	1
11160 / 10672	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	2
11310 / 10822	DEF	AT	DEF	IN	1
11460 / 10972	POS	AT local marker (general)	DEF	AT	2
11640 / 11152	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
11790 / 11301	DEF	AT	DEF	IN	2
11820 / 11331	POS	AT local marker (general)	DEF	IN	2
11910 / 11421	DEF	AT local marker foram increase	DEF	IN	2
11970 / 11481	DEF	AT faunal change (no faunal increase)	DEF	AT	3
12000 / 11511	DEF	AT local marker (general)	DEF	AT	3
12030 / 11541	DEF	AT foram flood	DEF	AT	3
12150 / 11661	DEF	AT	DEF	IN	2
12210 / 11721	DEF	AT Arenaceous fauna (local marker)	DEF	IN	2
12270 / 11781	DEF	AT	DEF	ΑT	0

GEOLOGIC

PAGE: 1121

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 26 Date of Summary: 01-NOV-2000 First Sample Examined: 10500 Source of Paleo: OPERATOR Lease Number: G01870 **Borehole MD:** 12571 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: D033 **Borehole TVD:** 12084 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177154102800 **Rkb Elevation:** 103 Paleo Report Num: 1 of 1 **Sample Range:** 10500 - 12570 Water Depth: 55 Public Info Code: Y 14-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>E</u>	cozone
12300 / 11811	DEF	AT	DEF	AT	2
12360 / 11871	DEF	AT	DEF	IN	2
12450 / 11961	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	IN	2
12480 / 11990	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	IN	2
12540 / 12050	DEF	AT local marker foram increase	DEF	IN	2
12570 / 12080	DEF	AT last sample examined	DEF	IN	2

GEOLOGIC

PAGE: 1122

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 26 Date of Summary: 01-NOV-2000 First Sample Examined: 10500 Lease Number: G01870 Source of Paleo: OPERATOR **Borehole MD:** 11800 Well Name: F027 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 11521 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177154102700 **Rkb Elevation:** 93 Paleo Report Num: 1 of 1 **Sample Range:** 10500 - 11880 59 Water Depth: Public Info Code: Y 14-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Pimento Prospect

MD / TVD		Paleo Top Description		<u>Ecc</u>	zone
10500 / 10223	DEF	AT first sample examined	DEF	AT	2
10530 / 10253	DEF	AT	DEF	IN	2
10710 / 10432	DEF	AT	DEF	AT	2
10830 / 10552	DEF	AT	DEF	AT	0
10890 / 10612	DEF	AT local marker (general)	DEF	AT	2
10920 / 10642	DEF	AT shell fragments	DEF	IN	1
11100 / 10821	DEF	AT sand	DEF	AT	0
11130 / 10851	DEF	AT	DEF	IN	1
11190 / 10911	POS	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	1
11280 / 11001	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	2
11370 / 11091	DEF	AT	DEF	AT	0
11400 / 11121	DEF	AT local marker foram increase	DEF	AT	2
11610 / 11331	DEF	AT Eggerella sp. (local marker)	DEF	AT	2
11640 / 11361	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	IN	2
11760 / 11481	DEF	AT	DEF	AT	2
11820 /	DEF	AT Cyclammina sp. (local marker)	DEF	IN	2
11850 /	DEF	AT last sample examined	DEF	IN	2

GEOLOGIC 02-FEB-2011

PAGE: 1123

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 26 Date of Summary: 01-NOV-2000 First Sample Examined: 11190 Lease Number: G01870 Source of Paleo: OPERATOR **Borehole MD:** 13730 Well Name: F027 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 13144 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177154102704 **Rkb Elevation:** 93 Paleo Report Num: 1 of 1 **Sample Range:** 11190 - 13740 Water Depth: 59 Public Info Code: Y 23-DEC-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Pimento Prospect

MD / TVD		Paleo Top Description		<u>E</u>	cozone
11190 / 10604	DEF	AT first sample examined	POS	AT	1
11250 / 10664	DEF	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	1
11280 / 10694	DEF	AT faunal change (no faunal increase)	DEF	IN	1
11370 / 10784	DEF	AT local marker (general)	DEF	AT	2
11490 / 10904	POS	AT local marker (general)	DEF	IN	1
11640 / 11054	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	2
11700 / 11114	DEF	AT faunal change (no faunal increase)	DEF	IN	1
11730 / 11144	DEF	AT Arenaceous fauna (local marker)	DEF	AT	2
11940 / 11354	DEF	AT faunal change (no faunal increase)	DEF	IN	1
12360 / 11774	DEF	AT faunal change (no faunal increase)	DEF	AT	2
12390 / 11804	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
12480 / 11894	DEF	AT faunal change (no faunal increase)	DEF	IN	2
12600 / 12014	DEF	AT faunal change (no faunal increase)	DEF	AT	2
12660 / 12074	DEF	AT Arenaceous fauna (local marker)	DEF	AT	2
12780 / 12194	DEF	AT local marker foram increase	DEF	AT	3
12840 / 12254	DEF	AT faunal change (no faunal increase)	DEF	IN	2
12990 / 12403	DEF	AT local marker foram increase	DEF	IN	2
13320 / 12733	DEF	AT turbid water facies	POS	IN	2
13380 / 12793	DEF	AT transported inner shelf facies	POS	AT	1
13470 / 12883	DEF	AT faunal change (no faunal increase)	DEF	AT	2
13500 / 12913	DEF	AT Turtle Grass fauna = Amphistegina Mound	DEF	AT	2
13650 / 13062	DEF	AT turbid water facies	POS	ΑT	2

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 1124

11190

13730

13144

93

59

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Paleo Report Num: 1 of 1

Area Block: ST 26 Date of Summary: 01-NOV-2000

Lease Number: G01870 Source of Paleo: OPERATOR

Well Name: F027 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC.

**Drilling Operator:** ENERGY PARTNERS LTD **API Well Number:** 177154102704

**Sample Range:** 11190 - 13740 Public Info Code: Y 23-DEC-2010 **Ecozone Eq MMS:** Y

MD / TVD **Paleo Top Description Ecozone** DEF AT last sample examined 13740 / POS AT 2

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1125

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 35	Date of Summary: 20-NOV-2000	First Sample Examined:	0
Lease Number: G03336	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14393
Well Name: D006	Paleo Done By: OPERATOR	Borehole TVD:	13662
API Well Number: 177154020002	Drilling Operator: CHEVRON USA INC	Rkb Elevation:	94
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	50
Public Info Code: Y 27-MAR-2009	Fcozone Fg MMS:	Paleo ID:	001

#### Remark:

<u> </u>	Paleo Top Description	<u>Ecozone</u>
11100 / 10804	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
12500 / 12007	DEF AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT
13300 / 12699	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT

GEOLOGIC

PAGE: 1126

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 41 Date of Summary: 28-OCT-2005 First Sample Examined: 15870 Lease Number: G26084 Source of Paleo: OPERATOR **Borehole MD:** 20320 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: E001 **Borehole TVD:** 18118 **Drilling Operator:** ENERGY PARTNERS LTD **API Well Number: 177154118601 Rkb Elevation:** 99 Paleo Report Num: 1 of 1 **Sample Range:** 15870 - 20290 72 Water Depth: Public Info Code: Y 30-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description			<b>Ecozone</b>
15870 / 15701	DEF	AT first sample examined	DEF	AT	. 2
16020 / 15813	DEF	AT	DEF	IN	2
16050 / 15835	DEF	AT	DEF	AT	. 2
16110 / 15878	DEF	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	. 2
16860 / 16357	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
16920 / 16389	DEF	AT	DEF	AT	. 2
18120 / 16996	DEF	AT	DEF	IN	2
18150 / 17012	DEF	AT local marker foram increase	DEF	IN	2
18240 / 17058	DEF	AT	DEF	AT	2
19020 / 17461	DEF	AT	DEF	IN	1
19720 / 17824	POS	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	2
19870 / 17903	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	3
19990 / 17965	DEF	AT	DEF	IN	2
20020 / 17980	DEF	AT	POS	IN.	2
20290 / 18106	DEF	AT last sample examined	POS	IN.	2

GEOLOGIC

PAGE: 1127

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 70 Date of Summary: 04-OCT-2007 9000 First Sample Examined: Lease Number: G24958 Source of Paleo: OPERATOR 24285 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24275 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177154121900 **Rkb Elevation:** 126 **Sample Range:** 9000 - 24270 Paleo Report Num: 1 of 1 Water Depth: 60 Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
9000 / 8999	DEF	AT first sample examined	DEF	AT	2
9030 / 9029	POS	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	2
9990 / 9989	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	2
10290 / 10289	POS	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	2
10560 / 10559	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	2
11670 / 11669	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	3
12810 / 12808	POS	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	3
13110 / 13108	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	4
13770 / 13767	DEF	AT	DEF	AT	3
13920 / 13917	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	3
14580 / 14577	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	3
16890 / 16886	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	3
17190 / 17186	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	3
19200 / 19196	POS	AT Upper Miocene (Tortonian) Uvigerina carapitana	DEF	AT	3
19890 / 19885	POS	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT	3
24270 / 24260	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC

PAGE: 1128

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 81 Date of Summary: 18-SEP-2007 18270 First Sample Examined: Lease Number: G27155 Source of Paleo: OPERATOR 20035 **Borehole MD:** 20029 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: BOIS D'ARC OFFSHORE LTD **API Well Number:** 177154122500 **Rkb Elevation:** 104 Paleo Report Num: 1 of 1 **Sample Range:** 18270 - 20040 Water Depth: 61 Public Info Code: Y 29-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>	
18270 / 18265	DEF AT first sample examined	DEF AT 3	
18271 / 18266	DEF IN Upper Miocene (Tortonian) Cristellaria "K"	DEF AT 3	
18570 / 18565	DEF AT local marker benthic foram increase	DEF AT 3	
18810 / 18805	POS AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF AT 3	
19559 / 19554	DEF AT local marker planktic foram increase	DEF AT 3	
19560 / 19555	DEF AT local marker benthic foram increase	DEF AT 3	
20040 /	DEF AT last sample examined	DEF AT 3	

GEOLOGIC 02-FEB-2011 PAGE: 1129

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 98 4550 Date of Summary: 17-JUN-2005 First Sample Examined: Lease Number: G24962 Source of Paleo: OPERATOR 23080 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO SOURCE **Borehole TVD:** 23074 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 177154117200 **Rkb Elevation:** 110 Paleo Report Num: 1 of 1 **Sample Range:** 4550 - 23080 Water Depth: 60 Public Info Code: Y 31-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD/TVD		Paleo Top Description		<u>E</u>	cozone
4550 / 4549	DEF	AT first sample examined	POS	AT	2
4551 / 4550	DEF	AT transported inner shelf facies	POS	AT	2
4730 / 4729	DEF	AT transported inner shelf facies	POS	AT	3
4970 / 4969	POS	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	4
5987 / 5986	POS	AT unconformity	DEF	AT	4
5988 / 5987	DEF	AT reworked material	DEF	AT	4
5989 / 5988	DEF	IN Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	4
5990 / 5989	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	4
6140 / 6139	DEF	AT local marker foram decrease	DEF	AT	4
7039 / 7038	DEF	AT transported inner shelf facies	DEF	AT	4
7040 / 7039	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
7698 / 7697	DEF	AT transported inner shelf facies	DEF	AT	4
7699 / 7698	POS	AT maximum flooding surface	DEF	AT	4
7700 / 7699	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	4
7760 / 7759	DEF	AT local marker foram decrease	DEF	AT	4
9509 / 9508	DEF	AT transported inner shelf facies	DEF	IN	4
9510 / 9509	DEF	AT Eggerella sp. (local marker)	DEF	IN	4
10020 / 10019	DEF	AT unconformity	DEF	IN	4
11010 / 11009	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	IN	4
12810 / 12809	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	5
13950 / 13949	DEF	AT Arenaceous fauna (local marker)	DEF	AT	5
14910 / 14909	DEF	AT unconformity	DEF	AT	5

**GEOLOGIC** 02-FEB-2011 PAGE: 1130

Water Depth:

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 98 Date of Summary: 17-JUN-2005 First Sample Examined: 4550 Lease Number: G24962 Source of Paleo: OPERATOR **Borehole MD:** 23080 23074 Well Name: 001 Paleo Done By: PALEO SOURCE **Borehole TVD:**

Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number: 177154117200 Rkb Elevation:** 110 60

Paleo Report Num: 1 of 1 **Sample Range:** 4550 - 23080

Public Info Code: Y 31-MAY-2008 **Ecozone Eq MMS:** Y

MD / TVD	Paleo Top Description		Ec	ozone
15600 / 15599 DEF	AT sample gap top	POS	AT	5
15990 / 15989 DEF	AT sample gap bottom	DEF	AT	5
16260 / 16259 DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	IN	5
16530 / 16529 DEF	AT unconformity	DEF	IN	5
16619 / 16618 DEF	AT Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	IN	5
16620 / 16619 POS	AT Upper Miocene (Tortonian) Planulina renzi	DEF	IN	5
17340 / 17338 DEF	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	6
17490 / 17488 POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	6
17900 / 17898 DEF	AT cement	DEF	AT	6
18480 / 18477 DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6
18510 / 18507 POS	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	6
18690 / 18687 DEF	AT local marker foram increase	DEF	AT	6
19650 / 19646 DEF	AT cement	DEF	AT	6
20010 / 20006 POS	AT local marker foram increase	DEF	AT	6
20250 / 20246 DEF	AT drilling material	DEF	AT	6
21960 /21956 DEF	AT black shale	DEF	AT	6
22379 / 22374 POS	AT reworked material	DEF	AT	6
22380 /22375 POS	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT	6
22920 / 22914 POS	AT local marker foram increase	DEF	AT	6
23070 /23063 POS	AT local marker foram increase	DEF	AT	6
23080 /23073 DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 1131

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 143 Date of Summary: 01-OCT-1999 5000 First Sample Examined: Lease Number: G06767 Source of Paleo: OPERATOR **Borehole MD:** 16812 Well Name: E001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 16711 Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number: 177154098300 Rkb Elevation:** 97 Paleo Report Num: 1 of 1 **Sample Range:** 5000 - 16610 75 Water Depth: Public Info Code: Y 17-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	ozone
5000 / 5000	DEF	AT first sample examined	DEF	AT	2
5001 / 5001	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	2
5060 / 5060	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	IN	2
5210 / 5210	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	2
5390 / 5390	DEF	AT brown shale	DEF	AT	2
5510 / 5510	DEF	AT pyrite	DEF	AT	2
5570 / 5570	DEF	AT local marker benthic foram increase	DEF	AT	2
5750 / 5750	DEF	AT faunal change (no faunal increase)	DEF	IN	2
5900 / 5900	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	IN	2
6260 / 6260	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	IN	2
6500 / 6500	DEF	AT Upper Pliocene (Gelasian) Textularia crassisepta / "P"	DEF	AT	3
6560 / 6560	DEF	AT local marker planktic foram increase	DEF	AT	3
6650 / 6650	DEF	AT pyrite	DEF	AT	3
6710 / 6710	DEF	AT faunal change (no faunal increase)	DEF	IN	3
6860 / 6860	DEF	AT pyrite	DEF	AT	3
7190 / 7190	DEF	AT local marker benthic foram increase	DEF	AT	3
7250 / 7250	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	3
7280 / 7280	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	3
7790 / 7790	DEF	AT shell fragments	DEF	IN	2
7910 / 7910	DEF	AT faunal change (no faunal increase)	DEF	AT	2
8090 / 8090	POS	AT local marker foram increase	DEF	AT	3
8570 / 8570	DEF	AT shell fragments	POS	AT	3

**GEOLOGIC** 02-FEB-2011 PAGE: 1132

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 143 Date of Summary: 01-OCT-1999 First Sample Examined: 5000 Lease Number: G06767 Source of Paleo: OPERATOR **Borehole MD:** 16812 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: E001 **Borehole TVD:** 16711

Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number: 177154098300 Rkb Elevation:** 97 75

Paleo Report Num: 1 of 1 **Sample Range:** 5000 - 16610 Water Depth: Paleo ID:

Public Info Code: Y 17-NOV-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
9140 / 9140	DEF	AT faunal change (no faunal increase)	DEF	IN	2
9260 / 9260	POS	AT Arenaceous fauna (local marker)	DEF	IN	2
9290 / 9290	DEF	AT Upper Pliocene (Piacenzian) Cyclammina sp.	DEF	IN	2
9350 / 9350	DEF	AT faunal change (no faunal increase)	DEF	AT	2
9710 / 9710	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	2
9770 / 9770	POS	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	IN	2
9920 / 9920	DEF	AT local marker benthic foram increase	DEF	IN	2
9950 / 9950	DEF	AT faunal change (no faunal increase)	POS	AT	2
10040 / 10040	DEF	AT shell fragments	POS	AT	2
10250 / 10250	DEF	AT faunal change (no faunal increase)	POS	IN	2
10340 / 10340	DEF	AT local marker benthic foram increase	POS	IN	2
10490 / 10490	DEF	AT local marker benthic foram increase	POS	IN	2
10520 / 10520	DEF	AT sample gap top	POS	IN	2
10610 / 10610	DEF	AT sample gap bottom	DEF	IN	2
10700 / 10700	DEF	AT Arenaceous fauna (local marker)	POS	IN	2
11030 / 11029	DEF	AT local marker benthic foram increase	POS	AT	2
11120 / 11118	DEF	AT Arenaceous fauna (local marker)	POS	AT	2
11390 / 11384	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	POS	AT	2
11780 / 11759	POS	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	2
11870 / 11845	DEF	AT sand	DEF	IN	2
12080 / 12046	DEF	AT local marker foram increase	DEF	IN	2
12200 / 12161	DEF	AT local marker benthic foram increase	DEF	AT	3
12260 / 12218	DEF	AT local marker benthic foram increase	DEF	AT	3
12410 / 12361	DEF	AT Arenaceous fauna (local marker)	DEF	AT	3

**GEOLOGIC** 02-FEB-2011 PAGE: 1133

Water Depth:

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 143 Date of Summary: 01-OCT-1999 First Sample Examined: 5000 Lease Number: G06767 Source of Paleo: OPERATOR **Borehole MD:** 16812 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: E001 **Borehole TVD:** 16711

Drilling Operator: ANADARKO E&P COMPANY LP **API Well Number: 177154098300 Rkb Elevation:** 97 75

Paleo Report Num: 1 of 1 **Sample Range:** 5000 - 16610

Public Info Code: Y 17-NOV-2009 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
12440 / 12390	POS	AT local marker benthic foram increase	DEF	IN	2
12740 / 12677	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
12770 / 12706	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
12830 / 12763	DEF	AT pyrite	DEF	AT	4
12890 / 12822	DEF	AT Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	AT	4
12980 / 12909	DEF	AT local marker planktic foram increase	DEF	AT	4
13010 / 12939	DEF	AT sand	DEF	AT	4
13100 / 13027	DEF	AT sample gap top	POS	AT	4
13160 / 13085	DEF	AT sample gap bottom	DEF	IN	3
13340 / 13263	DEF	AT faunal change (no faunal increase)	DEF	AT	3
13370 / 13292	DEF	AT Arenaceous fauna (local marker)	DEF	AT	3
13400 / 13322	DEF	AT local marker benthic foram increase	DEF	AT	3
13970 / 13888	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	3
14570 / 14488	DEF	AT local marker benthic foram increase	DEF	AT	3
14870 / 14787	DEF	AT faunal change (no faunal increase)	DEF	IN	3
15050 / 14967	DEF	AT faunal change (no faunal increase)	DEF	AT	3
15380 / 15296	DEF	AT local marker benthic foram increase	DEF	AT	3
15530 / 15445	DEF	AT sample gap top	POS	AT	3
15800 / 15714	DEF	AT sample gap bottom	DEF	AT	2
16460 / 16366	POS	AT Upper Miocene (Messinian) Globorotalia juanai	DEF	IN	2
16610 / 16513	DEF	AT last sample examined	DEF	IN	2

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1134

0

15925

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 143 Date of Summary: 31-AUG-2000 First Sample Examined:

Lease Number:G06767Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:

 Well Name:
 E002
 Paleo Done By:
 OPERATOR
 Borehole TVD:
 15800

API Well Number: 177154098500 Drilling Operator: ANADARKO E&P COMPANY LP Rkb Elevation: 91

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 75

Public Info Code: Y 26-DEC-2009 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

15230 / 15106 DEF AT Upper Miocene (Messinian) Globorotalia juanai DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1135

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 155 11500 Date of Summary: 14-JUL-2009 First Sample Examined: Lease Number: G26099 Source of Paleo: OPERATOR 19700 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19696 **API Well Number:** 177154123200 **Drilling Operator:** HUNT OIL COMPANY **Rkb Elevation:** 124 Paleo Report Num: 1 of 1 **Sample Range:** 11500 - 19700 Water Depth: 187 Public Info Code: Y 12-JUN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nanno species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
11500 / 11497	DEF	AT first sample examined	DEF	AT	3
11919 / 11916	POS	AT maximum flooding surface	DEF	AT	3
11920 / 11917	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	3
11980 / 11977	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	3
12700 / 12697	POS	AT maximum flooding surface	DEF	AT	4
12790 / 12787	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
12850 / 12847	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	4
12999 / 12996	POS	AT maximum flooding surface	DEF	AT	4
13000 / 12997	POS	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	4
13400 / 13397	POS	AT maximum flooding surface	DEF	AT	4
13630 / 13627	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	4
14020 / 14017	POS	AT maximum flooding surface	DEF	AT	5
14050 / 14047	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	5
14709 / 14706	POS	AT maximum flooding surface	DEF	AT	5
14710 / 14707	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	5
15130 / 15127	DEF	AT	DEF	AT	6
15520 / 15516	POS	AT maximum flooding surface	DEF	AT	6
15580 / 15576	DEF	AT	DEF	AT	5
16149 / 16145	DEF	AT local marker floral increase	DEF	AT	5
16150 / 16146	POS	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	5
16180 / 16176	POS	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	5
16300 / 16296	POS	AT maximum flooding surface	DEF	AT	5

GEOLOGIC

PAGE: 1136

Water Depth:

Paleo ID:

187

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 155 Date of Summary: 14-JUL-2009 First Sample Examined: 11500 Lease Number: G26099 Source of Paleo: OPERATOR **Borehole MD:** 19700 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 19696 **Drilling Operator: HUNT OIL COMPANY API Well Number:** 177154123200 **Rkb Elevation:** 124

Paleo Report Num: 1 of 1 Sample Range: 11500 - 19700

Public Info Code: Y 12-JUN-2009 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u> </u>	Ecozone
16330 / 16326	DEF	AT	DEF	ΑT	6
16569 / 16565	POS	AT maximum flooding surface	DEF	AT	6
16570 / 16566	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	ΑT	6
16630 / 16626	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	ΑT	6
17079 / 17075	POS	AT maximum flooding surface	DEF	AT	6
17080 / 17076	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT	6
17830 / 17826	POS	AT maximum flooding surface	DEF	ΑT	6
18098 / 18094	POS	AT maximum flooding surface	DEF	ΑT	6
18099 / 18095	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	ΑT	6
18100 / 18096	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	ΑT	6
19270 / 19266	POS	AT maximum flooding surface	DEF	ΑT	6
19300 / 19296	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	ΑT	6
19630 / 19626	POS	AT maximum flooding surface	DEF	ΑT	6
19700 / 19696	DEF	AT first sample examined	DEF	AT	6

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1137

12096

11863

**Borehole MD:** 

**Borehole TVD:** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 196 Date of Summary: 22-JUN-2000 First Sample Examined: 0

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G19829

Well Name: C001 Paleo Done By: OPERATOR

**Drilling Operator: WESTPORT RESOURCES CORPORATION API Well Number:** 177154096400 **Rkb Elevation:** 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

107 Water Depth: Public Info Code: Y 13-APR-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7880 / 7879	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
9350 / 9345	DEF AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1138

14000

13159

**Borehole MD:** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 203 Date of Summary: 12-JAN-2001 First Sample Examined: 0

Lease Number: G01269 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: B003 Paleo Done By: OPERATOR Borehole TVD:

API Well Number: 177154102600 Drilling Operator: LOUISIANA LAND AND EXPLORATION COMPANY Rkb Elevation: 100

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 145

Public Info Code: Y 16-DEC-2010 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

13654 / 12835 DEF IN Lower Pliocene (Zanclian) Buliminella 1 DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1139

0

10960

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 204 Date of Summary: 09-MAY-2001 First Sample Examined:

Lease Number: G01572 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD:

Well Name:C001Paleo Done By: OPERATORBorehole TVD:8397

API Well Number: 177154103800 Drilling Operator: EL PASO PRODUCTION GOM INC Rkb Elevation: 105

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 145

Public Info Code: Y 20-JAN-2011 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

9830 / 7619 DEF IN Upper Pliocene (Gelasian) Lenticulina 1 DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1140

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 204 4500 Date of Summary: 01-JAN-2001 First Sample Examined: Lease Number: G16432 Source of Paleo: OPERATOR 18401 **Borehole MD:** Well Name: B001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18396 Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 177154098100 **Rkb Elevation:** 108 Paleo Report Num: 1 of 2 **Sample Range:** 4500 - 18401 Water Depth: 153 Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: 6300=local Sphaeroidinella dehiscens increase, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description			Ecc	zone
4500 / 4500	DEF	AT first sample examined	P	os	AT	3
4620 / 4620	DEF	AT sample gap top	P	os	AT	3
4740 / 4740	DEF	AT sample gap bottom	P	OS	AT	3
4830 / 4830	DEF	AT reworked material	P	OS	AT	3
5400 / 5400	DEF	AT faunal change (no faunal increase)	D	ΕF	AT	3
5460 / 5460	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	D	ΕF	AT	3
5790 / 5790	DEF	AT faunal change (no faunal increase)	D	ΕF	IN	3
5820 / 5820	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	D	EF	IN	3
5880 / 5880	DEF	AT local marker foram increase	D	EF	IN	3
5940 / 5940	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	D	ΕF	IN	3
6270 / 6270	DEF	AT local marker planktic foram increase	D	EF	AT	4
6300 / 6300	DEF	AT local marker planktic foram increase	D	EF	AT	4
6420 / 6420	DEF	AT faunal change (no faunal increase)	D	EF	IN	3
6570 / 6570	DEF	AT local marker foram increase	D	EF	IN	3
6810 / 6809	DEF	AT faunal change (no faunal increase)	D	EF	AT	3
6960 / 6959	POS	AT unconformity	D	EF	AT	4
7019 / 7018	DEF	AT pyrite	D	ΕF	AT	4
7020 / 7019	DEF	AT local marker planktic foram increase	D	EF	AT	4
7050 / 7049	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	D	ΕF	AT	4
7170 / 7169	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	D	ΕF	AT	4
7199 / 7198	POS	AT unconformity	D	ΕF	AT	4
7200 / 7199	POS	AT pyrite	D	ΕF	AT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 1141

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 204 Date of Summary: 01-JAN-2001 First Sample Examined: 4500 Lease Number: G16432 Source of Paleo: OPERATOR **Borehole MD:** 18401 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: B001 **Borehole TVD:** 18396

Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 177154098100 **Rkb Elevation:** 108 Water Depth: 153

Paleo Report Num: 1 of 2 **Sample Range:** 4500 - 18401

Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description			Ecozone
7260 / 7259	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
7319 / 7318	DEF	AT pyrite	DEF	AT	4
7380 / 7379	DEF	AT limestone	DEF	AT	4
7530 / 7529	DEF	AT faunal change (no faunal increase)	DEF	IN	3
7679 / 7678	POS	AT unconformity	POS	AT.	4
7680 / 7679	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	POS	AT.	4
7740 / 7739	DEF	AT pyrite	POS	AT.	4
8220 / 8219	DEF	AT faunal change (no faunal increase)	POS	AT.	3
8340 / 8339	DEF	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	POS	AT.	3
8400 / 8399	DEF	AT faunal change (no faunal increase)	POS	AT.	4
8610 / 8609	DEF	AT pyrite	POS	AT.	4
8790 / 8789	DEF	AT faunal change (no faunal increase)	POS	IN.	3
9150 / 9149	DEF	AT faunal change (no faunal increase)	POS	AT	3
9480 / 9479	DEF	AT faunal change (no faunal increase)	POS	AT.	4
9540 / 9539	DEF	AT Upper Pliocene (Piacenzian) Cyclammina sp.	POS	AT.	4
9960 / 9959	DEF	AT faunal change (no faunal increase)	POS	IN.	3
10020 /10019	DEF	AT pyrite	POS	IN.	3
10200 / 10199	DEF	AT sample gap top	POS	IN.	3
11199 / 11198	DEF	AT sample gap bottom	DEF	IN	3
11200 / 11199	DEF	AT cement	DEF	AT	3
11201 / 11200	DEF	AT local marker foram increase	DEF	AT	3
11230 / 11229	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	3
11259 / 11258	DEF	AT pyrite	DEF	AT	3
11260 / 11259	POS	IN Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	3

**GEOLOGIC** 02-FEB-2011 PAGE: 1142

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 204 Date of Summary: 01-JAN-2001 First Sample Examined: 4500 Lease Number: G16432 Source of Paleo: OPERATOR **Borehole MD:** 18401

Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: B001 **Borehole TVD:** 18396 Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 177154098100 **Rkb Elevation:** 108 153 Water Depth:

Paleo Report Num: 1 of 2 **Sample Range:** 4500 - 18401

Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description			<u>E</u>	cozone
11350 / 11349	DEF	AT faunal change (no faunal increase)	ו	DEF	IN	2
11410 / 11409	DEF	AT Arenaceous fauna (local marker)	ו	DEF	IN	2
11440 / 11439	DEF	AT Eggerella sp. (local marker)	ו	DEF	IN	2
11469 / 11468	DEF	AT pyrite	ו	DEF	IN	2
11470 / 11469	DEF	AT Arenaceous fauna (local marker)	ו	DEF	IN	2
11500 / 11499	DEF	AT local marker foram increase	Γ	DEF	AT	3
11589 / 11588	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	ן	DEF	AT	3
11590 / 11589	DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	ן	DEF	AT	3
12070 / 12069	DEF	AT faunal change (no faunal increase)	ו	DEF	IN	2
12310 / 12309	DEF	AT pyrite	ו	DEF	IN	2
12550 / 12549	DEF	AT Eggerella sp. (local marker)	ו	DEF	IN	2
13420 / 13418	DEF	AT Cyclammina sp. (local marker)	ו	DEF	IN	2
13600 / 13598	DEF	AT local marker foram increase	ו	DEF	IN	2
13659 / 13657	DEF	AT pyrite	ו	DEF	IN	2
13660 / 13658	DEF	AT reworked material	ו	DEF	IN	2
14019 / 14017	DEF	AT reworked material	F	POS	AT	3
14020 / 14018	POS	AT Lower Pliocene (Zanclian) Buliminella 1	F	POS	AT	3
14320 / 14318	DEF	AT Arenaceous fauna (local marker)	F	POS	AT	3
14350 / 14348	DEF	AT local marker foram increase	F	POS	AT	3
14351 / 14349	DEF	AT Cyclammina cancellata (local marker)	F	POS	AT	3
14470 / 14468	DEF	AT Arenaceous fauna (local marker)	F	POS	AT	3
14590 / 14587	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	F	POS	AT	3
14650 / 14647	DEF	AT faunal change (no faunal increase)	Γ	DEF	IN	3
14680 / 14677	DEF	AT local marker foram increase	Γ	DEF	IN	3

**GEOLOGIC** 02-FEB-2011 PAGE: 1143

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 204 Date of Summary: 01-JAN-2001 First Sample Examined: 4500 Lease Number: G16432 Source of Paleo: OPERATOR **Borehole MD:** 18401 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: B001 **Borehole TVD:** 18396

> Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 177154098100 **Rkb Elevation:** 108 153 Water Depth:

Paleo Report Num: 1 of 2 **Sample Range:** 4500 - 18401

Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Ec	ozone
14770 / 14767	DEF	AT drilling material	DEF	IN	3
14830 / 14827	DEF	AT faunal change (no faunal increase)	DEF	AT	3
15250 / 15246	DEF	AT Arenaceous fauna (local marker)	DEF	AT	3
15400 / 15396	POS	IN Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	3
15490 / 15486	DEF	AT faunal change (no faunal increase)	POS	IN	3
15550 / 15546	DEF	AT local marker foram increase	POS	IN	3
15610 / 15606	DEF	AT faunal change (no faunal increase)	DEF	AT	3
15880 / 15876	DEF	AT Cyclammina cancellata (local marker)	POS	AT	4
16000 / 15996	DEF	AT local marker foram increase	POS	AT	4
16120 / 16116	DEF	AT faunal change (no faunal increase)	DEF	IN	3
16143 / 16139	DEF	AT cement	DEF	AT	
16210 / 16206	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	3
16270 / 16266	DEF	AT local marker foram increase	DEF	IN	3
16300 / 16296	DEF	AT local marker planktic foram increase	DEF	AT	4
16330 / 16326	DEF	AT local marker foram increase	DEF	AT	4
16480 / 16476	POS	AT Cyclammina sp. (local marker)	DEF	AT	4
16629 / 16625	DEF	AT pyrite	DEF	AT	4
16630 / 16626	DEF	AT local marker foram increase	DEF	AT	4
16900 / 16895	DEF	AT faunal change (no faunal increase)	DEF	IN	3
17050 / 17045	DEF	AT reworked material	DEF	IN	3
17320 / 17315	DEF	AT faunal change (no faunal increase)	DEF	AT	3
17500 / 17495	DEF	IN Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	3
17679 / 17674	POS	AT reworked material	DEF	AT	3
17680 / 17675	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	3

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

PAGE: 1144

4500

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 204 Date of Summary: 01-JAN-2001 First Sample Examined:

Lease Number:G16432Source of Paleo:OPERATORBorehole MD:18401Well Name:B001Paleo Done By:APPLIED BIOSTRATIGRAPHIXBorehole TVD:18396

API Well Number: 177154098100 Drilling Operator: EL PASO PRODUCTION GOM INC

Paleo Report Num: 1 of 2 Sample Range: 4500 - 18401 Water Depth: 153

Public Info Code: Y 19-OCT-2010 Ecozone Eq MMS: Y Paleo ID: 001

MD / TVD Paleo Top Description

18401 / 18395

DEF AT last sample examined

DEF AT 3

MD / TVD

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011

PAGE: 1145

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 204 Date of Summary: 01-JAN-2001 First Sample Examined: 4500 Lease Number: G16432 Source of Paleo: OPERATOR 18401 **Borehole MD:** Well Name: B001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18396 **API Well Number: 177154098100 Drilling Operator:** EL PASO PRODUCTION GOM INC **Rkb Elevation:** 108 Paleo Report Num: 2 of 2 Sample Range: 4500 - 18401 153 Water Depth: Public Info Code: Y 19-OCT-2010 002 **Ecozone Eq MMS:** Paleo ID:

Remark: Calcareous nannofossil report, 8430=Sphenolithus abies consistent, 8460=Dictyococcites productus increase, 9330=Reticulofenestra pseudoumbilica consistent, 9630=Reticulofenestra pseudoumbilica increase, 16390=Cryptococcolithus takayamae=indicator flora for Discoaster quinqueramus, 16420=Reticulofenestra gelida increase, an indicator flora for Discoaster quinqueramus, below 7682 feet, the nannofossil Preservation is poorer than was observed in the Pleistocene section, nannospecies abundance and diversity chart available, see report for details

IVD		Paleo Top Description		<u> Ecozone</u>
4500	DEF	AT first sample examined	DEF	AT
4501	DEF	IN Middle Pleistocene (Ionian) Gephyrocapsa parallela	DEF	AT
5430	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
5759	POS	AT unconformity	DEF	AT
5760	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5790	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
5910	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
6420	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa margerelli	DEF	AT
6450	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6570	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
6959	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7049	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	AT
7050	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
7349	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri "A"	DEF	AT
7619	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
7679	DEF	AT Lower Pliocene (Zanclian) Discoaster variabilis	DEF	AT
7680	DEF	AT Upper Pliocene (Piacenzian) Cycloperfolithus carlae	DEF	AT
7681	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
7709	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
	4500 4501 5430 5759 5760 5790 5910 6420 6450 6570 6959 7049 7050 7349 7619 7679 7680 7681	4500 DEF 4501 DEF 5430 DEF 5759 POS 5760 DEF 5790 DEF 5910 DEF 6420 DEF 6420 DEF 6450 DEF 6450 DEF 6570 DEF 7049 DEF 7050 DEF 7349 DEF 7619 DEF 7679 DEF 7680 DEF 7681 DEF	4500 DEF AT first sample examined 4501 DEF IN Middle Pleistocene (Ionian) Gephyrocapsa parallela 5430 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme) 5759 POS AT unconformity 5760 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) 5790 DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme) 5910 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B 6420 DEF AT Middle Pleistocene (Ionian) Gephyrocapsa margerelli 6450 DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii 6570 DEF AT Lower Pleistocene (Calabrian) Lithostromation perdurum 6959 DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei 7049 DEF AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase) 7050 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri 7349 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri 7619 DEF AT Upper Pliocene (Fiacenzian) Discoaster asymmetricus 7679 DEF AT Lower Pleiocene (Fiacenzian) Discoaster variabilis 7680 DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis	4500 DEF AT first sample examined DEF 4501 DEF IN Middle Pleistocene (Ionian) Gephyrocapsa parallela DEF 5430 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme) DEF 5759 POS AT unconformity DEF 5760 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large) DEF 5790 DEF AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme) DEF 5791 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B 5790 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B 6420 DEF AT Lower Pleistocene (Calabrian) Gephyrocapsa B 6450 DEF AT Lower Pleistocene (Calabrian) Helicosphaera sellii DEF 6570 DEF AT Lower Pleistocene (Calabrian) Lithostromation perdurum DEF 6570 DEF AT Lower Pleistocene (Calabrian) Lithostromation perdurum DEF 6570 DEF AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei (increase) DEF 6704 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri 6705 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri 6706 DEF AT Upper Pliocene (Gelasian) Discoaster brouweri 6707 DEF AT Upper Pliocene (Piacenzian) Discoaster asymmetricus 6708 DEF AT Upper Pliocene (Piacenzian) Discoaster variabilis 6709 DEF AT Upper Pliocene (Piacenzian) Discoaster variabilis 6709 DEF AT Upper Pliocene (Piacenzian) Discoaster variabilis 6709 DEF AT Upper Pliocene (Piacenzian) Discoaster tamalis

This report contains public paleo reports only for the time period stated

Paleo Ton Description

**GEOLOGIC** 02-FEB-2011

PAGE: 1146

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 204 Date of Summary: 01-JAN-2001 4500 First Sample Examined: Lease Number: G16432 Source of Paleo: OPERATOR 18401 **Borehole MD:** Well Name: B001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 18396 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number:** 177154098100 **Rkb Elevation:** 108 Paleo Report Num: 2 of 2 **Sample Range:** 4500 - 18401 Water Depth: 153 Paleo ID: 002

Public Info Code: Y 19-OCT-2010 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8430 / 8429	DEF	AT Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
8460 / 8459	DEF	AT local marker floral increase	DEF	AT
9330 / 9329	DEF	IN Lower Pliocene (Zanclian) Sphenolithus verensis	DEF	AT
9630 / 9629	DEF	AT local marker floral increase	DEF	AT
10200 / 10199	DEF	AT sample gap top	DEF	AT
11199 / 11198	DEF	AT sample gap bottom	DEF	AT
11200 / 11199	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
11201 / 11200	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
11500 / 11499	DEF	IN Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT
14440 / 14438	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
14860 / 14857	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica "B"	DEF	AT
16390 / 16386	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
16420 / 16416	DEF	AT local marker floral increase	DEF	AT
16600 / 16596	DEF	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
17440 / 17435	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
17770 / 17764	POS	AT local marker floral increase	DEF	AT
18370 / 18364	DEF	AT last sample examined	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1147

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 205	Date of Summary: 18-JAN-2001	First Sample Examined:	0
Lease Number: G05612	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9978
Well Name: B005	Paleo Done By: OPERATOR	Borehole TVD:	7874
API Well Number: 177154103300	Drilling Operator: HESS CORPORATION	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	165
Public Info Code: Y 16-DEC-2010	Ecozone Eq MMS:	Paleo ID:	001

Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
8360 / 6723	DEF	AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF A	AT
8750 / 7002	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF /	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1148

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 212 Date of Summary: 18-AUG-1999 First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G14538 **Borehole MD:** 9056

Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 

8376 **Drilling Operator:** IP PETROLEUM COMPANY INC **API Well Number: 177164024500 Rkb Elevation:** 100

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 137

Public Info Code: Y 28-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD **Paleo Top Description Ecozone** 

DEF IN Upper Pliocene (Gelasian) Lenticulina 1 DEF AT 8342 / 7761

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1149

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 212 Date of Summary: 20-MAR-2000

First Sample Examined: 0

Lease Number: G14538

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Borehole MD: 9014

Well Name: A002

Paleo Done By: OPERATOR

Borehole TVD: 8200

**API Well Number:** 177164026400

 $\textbf{Drilling Operator:} \ \mathsf{IP} \ \mathsf{PETROLEUM} \ \mathsf{COMPANY} \ \mathsf{INC}$ 

Rkb Elevation: 106

Paleo Report Num: 1 of 1

Sample Range: 0 - 0

Water Depth: 140

Public Info Code: Y 16-FEB-2010

**Ecozone Eq MMS:** 

Paleo ID: 001

Remark: In=sand

MD / TVD

**Paleo Top Description** 

**Ecozone** 

8540 / 7776

DEF IN Upper Pliocene (Gelasian) Lenticulina 1

DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1150

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: ST 212	Date of Summary: 11-MAR-2003	First Sample Examined:	17927
Lease Number: G14538	Source of Paleo: OPERATOR	Borehole MD:	19730
Well Name: C001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	19724
<b>API Well Number: 177164030800</b>	Drilling Operator: EL PASO PRODUCTION COMPANY	Rkb Elevation:	101
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 17927 - 19730	Water Depth:	140
Public Info Code: Y 20-MAY-2010	Ecozone Eg MMS: Y	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
17927 / 17923	DEF	AT first sample examined	DEF A	AT	3
19130 / 19123	DEF	AT	DEF A	AT	4
19220 / 19213	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF A	AT	4
19730 / 19722	DEF	AT last sample examined	DEF /	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 1151

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 217 Date of Summary: 16-APR-1998 First Sample Examined: 800 Lease Number: G13937 Source of Paleo: OPERATOR **Borehole MD:** 8700 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8700 **Drilling Operator:** ENI PETROLEUM CO INC **API Well Number: 177164023600 Rkb Elevation:** 100 Paleo Report Num: 1 of 2 800 - 8700 Sample Range: Water Depth: 144 Public Info Code: Y 28-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u> (	cozone
800 / 800	DEF A	T first sample examined	DEF	AT	2
1730 / 1730	DEF A	T faunal change (no faunal increase)	DEF	AT	3
3830 / 3830	DEF A	T Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
4700 / 4700	DEF A	T faunal change (no faunal increase)	DEF	AT	4
5420 / 5420	POS A	T Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"	DEF	AT	4
5900 / 5900	DEF A	T faunal change (no faunal increase)	DEF	AT	5
6470 / 6470	DEF A	T faunal change (no faunal increase)	DEF	AT	4
6680 / 6680	DEF A	T Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
7550 / 7550	DEF A	T Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	4
7610 / 7610	DEF A	T faunal change (no faunal increase)	DEF	AT	5
7640 / 7640	DEF A	T Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
7760 / 7760	DEF A	T faunal change (no faunal increase)	DEF	AT	4
8700 / 8700	DEF A	T last sample examined	DEF	ΑT	4

GEOLOGIC 02-FEB-2011

PAGE: 1152

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 217 Date of Summary: 16-APR-1998 First Sample Examined: 4010 Lease Number: G13937 Source of Paleo: OPERATOR **Borehole MD:** 8700 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 8700 **Drilling Operator:** ENI PETROLEUM CO INC **API Well Number: 177164023600 Rkb Elevation:** 100 Paleo Report Num: 2 of 2 **Sample Range:** 4010 - 8700 144 Water Depth: Public Info Code: Y 28-APR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	<u> </u>	Paleo Top Description		<b>Ecozone</b>
4010 / 401	0 DEF	AT first sample examined	DEF	AT
4760 / 476	0 DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT
5000 / 500	00 POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
5900 / 590	00 DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
6410 / 641	0 DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
7070 / 707	70 POS	IN Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
7550 / 755	0 DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
7610 / 761	0 DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
8700 / 870	00 DEF	AT last sample examined	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1153

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 264 Date of Summary: 12-OCT-1999

First Sample Examined: 0

Lease Number: G19832

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

13870 **Borehole MD:** 

Well Name: A001

Paleo Done By: OPERATOR

**Borehole TVD:** 13030

**API Well Number:** 177164025400

Drilling Operator: TANA OIL AND GAS CORPORATION

**Rkb Elevation:** 82

Paleo Report Num: 1 of 1

0 - 0 Sample Range:

Water Depth: 214

Public Info Code: Y 20-SEP-2009

**Ecozone Eq MMS:** 

Paleo ID: 001

Remark: In=sand

MD / TVD

**Paleo Top Description** 

**Ecozone** 

8190 / 8050

DEF IN Upper Pliocene (Piacenzian) Globoquadrina altispira

DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1154

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: ST 274 Date of Summary: 23-MAY-2002 First Sample Examined: 9000 Lease Number: G19835 Source of Paleo: OPERATOR **Borehole MD:** 14267 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13008 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 177164029400 **Rkb Elevation:** 127 Paleo Report Num: 1 of 1 **Sample Range:** 9000 - 14267 265 Water Depth: Public Info Code: Y 08-FEB-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecc	<u>ozone</u>
9000 / 9000	DEF	AT first sample examined	DEF	AT	5
9420 / 9420	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	5
9480 / 9480	DEF	AT Upper Pliocene (Piacenzian) Ceratobulimina pacifica	DEF	AT	5
9600 / 9599	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
10890 / 10840	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
11880 / 11595	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
12570 / 11997	DEF	AT	DEF	AT	4
14267 / 13009	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 1155

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 69	Date of Summary: 13-JUL-2000	First Sample Examined:	0
Lease Number: G08765	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	17050
Well Name: 003	Paleo Done By: OPERATOR	Borehole TVD:	15462
API Well Number: 608164035701	Drilling Operator: CHEVRON USA INC	Rkb Elevation:	133
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	98
Public Info Code: Y 09-JUN-2010	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
14818 / 13803	DEF	AT Lower Cretaceous Mooringsport Formation	DEF	AT
15188 / 14119	DEF	AT Lower Cretaceous Ferry Lake Anhydrite	DEF	AT
15522 / 14385	DEF	AT Lower Cretaceous Rodessa Formation	DEF	AT
16138 / 14855	DEF	AT Lower Cretaceous James Formation	DEF	AT
16969 / 15414	DEF	AT Lower Cretaceous Sligo (Pettet) Formation	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1156

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 251 Date of Summary: 29-AUG-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G10930 **Borehole MD:** 16150 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 14938 **Drilling Operator: CHEVRON USA INC API Well Number:** 608164034501 **Rkb Elevation:** 124 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 121 Water Depth: Public Info Code: Y 22-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10394 / 9795	DEF AT Lower (Early) Cretaceous	DEF AT
13340 / 12370	DEF AT Lower Cretaceous Paluxy Formation	DEF AT
14249 / 13203	DEF AT Lower Cretaceous Mooringsport Formation	DEF AT
14730 / 13653	DEF AT Lower Cretaceous Ferry Lake Anhydrite	DEF AT
14988 / 13888	DEF AT Lower Cretaceous Rodessa Formation	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1157

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 384 Date of Summary: 10-MAR-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16541 **Borehole MD:** 15250 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 15247 Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 608164035400 **Rkb Elevation:** 101 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 128 Water Depth: Public Info Code: Y 22-FEB-2010 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
4975 / 4975	DEF AT Upper Oligocene (Chattian) Heterostegina texana D	DEF AT
8720 / 8720	DEF AT Upper Cretaceous Selma Chalk (or Group)	DEF AT
9885 / 9884	DEF AT Lower (Early) Cretaceous	DEF AT
11260 / 11259	DEF IN Upper-Lower Cretaceous Washita Group/Provincial Stage	DEF AT
12150 / 12149	DEF IN Lower Cretaceous Albian Stage	DEF AT
12590 / 12589	DEF AT Lower Cretaceous Paluxy Formation D	DEF AT
13100 / 13099	DEF AT Lower Cretaceous Upper Glen Rose Formation D	DEF AT
13650 / 13649	DEF AT Lower Cretaceous Mooringsport Formation D	DEF AT
14642 / 14640	DEF IN Lower Cretaceous Rodessa Formation D	DEF AT
14850 / 14848	DEF AT Lower Cretaceous Punta Gorda Formation D	DEF AT
15050 / 15047	DEF AT Lower Cretaceous Sligo (Pettet) Formation	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1158

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 385 Date of Summary: 28-SEP-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16542 15500 **Borehole MD:** Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 15499 Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 608164034100 **Rkb Elevation:** 88 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 142 Public Info Code: Y 11-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand, 11150=Washita-Fredericksburg, 12035=Middle Albian, 14650=Lower Rodessa

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6111 / 6111	DEF	AT Upper Oligocene (Chattian) Heterostegina texana	DEF	AT
8636 / 8635	DEF	AT Upper Cretaceous Selma Chalk (or Group)	DEF	AT
9840 / 9839	DEF	AT Lower (Early) Cretaceous	DEF	AT
11150 / 11149	DEF	IN Upper-Lower Cretaceous Washita Group/Provincial Stage	DEF	AT
12035 / 12034	DEF	IN Lower Cretaceous Albian Stage	DEF	AT
12500 / 12499	DEF	AT Lower Cretaceous Paluxy Formation	DEF	AT
12978 / 12977	DEF	AT Lower Cretaceous Upper Glen Rose Formation	DEF	AT
13590 / 13589	DEF	AT Lower Cretaceous Mooringsport Formation	DEF	AT
14650 / 14649	DEF	IN Lower Cretaceous Rodessa Formation	DEF	AT
14880 / 14879	DEF	AT Lower Cretaceous Punta Gorda Formation	DEF	AT
15450 / 15449	DEF	AT Lower Cretaceous Sligo (Pettet) Formation	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1159

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 385 Date of Summary: 13-NOV-2001

First Sample Examined: 0

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16542

**Borehole MD:** 16333 Paleo Done By: OPERATOR **Borehole TVD:** 15000

**API Well Number: 608164036000** Drilling Operator: EL PASO PRODUCTION GOM INC

**Rkb Elevation:** 135 137 Water Depth:

0 - 0 Paleo Report Num: 1 of 1 Sample Range: Public Info Code: Y 07-AUG-2010 **Ecozone Eq MMS:** 

Paleo ID: 001

Remark:

Well Name: A002

MD / TVD **Paleo Top Description Ecozone** 

DEF IN Lower Cretaceous Rodessa Formation DEF AT 15992 / 14717

GEOLOGIC

02-FEB-2011 PAGE: 1160

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 734	Date of Summary: 01-OCT-1999	First Sample Examined:	0
Lease Number: G13672	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	15730
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	13922
API Well Number: 608164034200	<b>Drilling Operator: MOBIL OIL EXPLORATION &amp; PRODUC</b>	Rkb Elevation:	108
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	320
Public Info Code: Y 13-JUN-2009	Ecozone Eg MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6824 / 6401	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
10503 / 9410	DEF	AT Upper Miocene (Tortonian) Eponides mansfieldi	DEF	AT
12185 / 10790	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT
12945 / 11427	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT
14110 / 12409	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
15232 / 13443	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1161

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 738 Date of Summary: 24-JUL-2001 First Sample Examined: 0 12770 **Borehole MD:**

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G15431

**Ecozone Eq MMS:** 

Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 11911

**API Well Number: 608164036601 Drilling Operator: NEWFIELD EXPLORATION COMPANY Rkb Elevation:** 85

0 - 0 809 Paleo Report Num: 1 of 1 Sample Range: Water Depth:

Remark: In=sand

Public Info Code: Y 10-SEP-2010

MD / TVD **Paleo Top Description Ecozone** DEF AT Upper Miocene (Tortonian) Uvigerina 3 11012 / 10364 DEF AT DEF IN Middle Miocene (Serravallian) Textularia "W" DEF AT 12139 / 11354

GEOLOGIC 02-FEB-2011 PAGE: 1162

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 786 Date of Summary: 11-FEB-1998 First Sample Examined: 7970 Lease Number: G12119 Source of Paleo: OPERATOR **Borehole MD:** 12700 Well Name: A005 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10747 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608164030100 **Rkb Elevation:** 80 Paleo Report Num: 1 of 2 **Sample Range:** 7970 - 12700 1754 Water Depth: Public Info Code: Y 02-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

### Remark:

MD /	TVD		Paleo Top Description		Ecoz	zone
7970 /	7081	DEF	AT first sample examined	DEF	AT	3
8030 /	7127	DEF	AT	DEF	IN	3
8150 /	7220	DEF	AT	DEF	AT	3
8210 /	7266	DEF	AT	DEF	IN	3
8330 /	7359	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	IN	3
8750 /	7686	DEF	AT	DEF	AT	3
8870 /	7779	DEF	AT	DEF	AT	3
8990 /	7871	DEF	AT	DEF	IN	2
9150 /	7995	DEF	AT	POS	AT	3
9580 /	8327	DEF	AT	POS	IN	2
9700 /	8420	DEF	AT	DEF	AT	2
9730 /	8444	DEF	AT	POS	IN	2
9760 /	8467	DEF	AT	DEF	AT	3
9820 /	8513	DEF	AT	POS	IN	3
9849 /	8536	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	POS	IN	3
9850 /	8537	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	POS	IN	3
10000 /	8654	DEF	AT	POS	AT	3
10390 /	8955	DEF	IN Upper Miocene (Tortonian) Textularia "L"	POS	AT	3
10660 /	9163	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	IN	3
10750 /	9232	DEF	AT Eggerella sp. (local marker)	DEF	IN	3
10780 /	9255	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	4
10930 /	9370	DEF	AT local marker deep water fauna	DEF	AT	4

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 1163

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 786 Date of Summary: 11-FEB-1998 7970 First Sample Examined: Lease Number: G12119 Source of Paleo: OPERATOR 12700 **Borehole MD:** Well Name: A005 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10747 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608164030100 **Rkb Elevation:** 80 **Sample Range:** 7970 - 12700 Paleo Report Num: 1 of 2 Water Depth: 1754 Public Info Code: Y 02-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ecoz</u>	zone
11140 / 9531	DEF	AT	DEF	AT	3
11440 / 9763	DEF	AT	POS	IN	3
11650 / 9925	DEF	AT	POS	AT	3
11800 / 10040	DEF	AT	DEF	IN	2
11860 / 10087	DEF	AT	DEF	AT	3
11890 / 10110	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	3
12010 / 10204	POS	AT local marker foram increase	DEF	AT	3
12070 / 10251	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	IN	3
12130 / 10298	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	4
12220 / 10368	DEF	AT local marker deep water fauna	DEF	AT	4
12340 / 10463	DEF	AT	DEF	IN	3
12460 / 10558	DEF	AT local marker deep water fauna	DEF	AT	4
12490 / 10581	DEF	AT Middle Miocene (Langhian) Globorotalia siakensis (coiling change left/right)	DEF	IN	4
12550 / 10629	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	IN	4
12580 / 10652	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	IN	4
12670 / 10724	DEF	AT limestone	DEF	IN	4
12700 / 10747	DEF	AT last sample examined	DEF	IN	4

GEOLOGIC 02-FEB-2011 PAGE: 1164

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 786 Date of Summary: 11-FEB-1998 7970 First Sample Examined: Lease Number: G12119 Source of Paleo: OPERATOR 12700 **Borehole MD:** Well Name: A005 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 10747 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608164030100 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 7970 - 12700 1754 Water Depth: Public Info Code: Y 02-MAR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7970 / 7081	DEF	AT first sample examined	DEF	- AT
7971 / 7082	DEF	IN Upper Miocene (Tortonian) Discoaster neohamatus	DEF	- AT
8209 / 7265	DEF	AT floral flood	DEF	F AT
8210 / 7266	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	F AT
9639 / 8373	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	F AT
9640 / 8374	POS	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	F AT
9700 / 8420	DEF	AT floral flood	DEF	F AT
9939 / 8606	DEF	AT floral flood	DEF	F AT
9940 / 8607	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	F AT
10480 / 9024	POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	F AT
10720 / 9209	POS	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	F AT
10780 / 9255	DEF	AT Upper Miocene (Tortonian) Discoaster exilis	DEF	F AT
10840 / 9301	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	F AT
11799 / 10040	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	F AT
11800 / 10040	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	F AT
11920 / 10134	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	- AT
12460 / 10558	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	- AT
12520 / 10605	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	F AT
12580 / 10652	DEF	AT Middle Miocene (Langhian) Discoaster druggi	DEF	F AT
12640 / 10700	DEF	AT floral flood	DEF	F AT
12700 / 10747	DEF	AT last sample examined	DEF	F AT

GEOLOGIC 02-FEB-2011

PAGE: 1165

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 786 Date of Summary: 30-JAN-1998 8010 First Sample Examined: Lease Number: G12119 Source of Paleo: OPERATOR 13550 **Borehole MD:** Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. Well Name: A006 **Borehole TVD:** 11054 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608164030200 **Rkb Elevation:** 80 Paleo Report Num: 1 of 2 **Sample Range:** 8010 - 13552 Water Depth: 1751 Public Info Code: Y 14-FEB-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report

<u>MD /</u>	TVD		Paleo Top Description		<b>Ecozone</b>
8010 /	6961	DEF	AT first sample examined	DEF	AT
8011 /	6962	DEF	IN Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
8130 /	7051	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
8550 /	7364	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
8850 /	7586	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
10170 /	8556	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
10230 /	8600	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT
10710 /	8957	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus (large)	DEF	AT
10890 /	9090	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
11250 /	9358	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	AT
11490 /	9537	DEF	AT Upper Miocene (Tortonian) Discoaster exilis	DEF	AT
11730 /	9715	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus (increase)	DEF	AT
11790 /	9760	DEF	IN Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
11910 /	9849	DEF	AT Middle Miocene (Serravallian) Discoaster divaricatus	DEF	AT
12390 /	10207	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
12450 /	10251	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DEF	AT
12570 /	10341	DEF	AT Middle Miocene (Serravallian) Sphenolithus moriformis	DEF	AT
12630 /	10385	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT
13552 /		DEF	AT last sample examined	DEF	AT

**GEOLOGIC** 02-FEB-2011 PAGE: 1166

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 786 8010 Date of Summary: 05-MAR-1998 First Sample Examined: Lease Number: G12119 Source of Paleo: OPERATOR 13550 **Borehole MD:** Well Name: A006 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 11054 **API Well Number: 608164030200 Drilling Operator: TEXACO EXPLORATION AND PROD Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 8010 - 13552 Water Depth: 1751 Public Info Code: Y 14-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		Ecoz	zone
8010 / 6961	DEF	AT first sample examined	DEF	AT	3
8011 / 6962	DEF	IN Upper Miocene (Tortonian) Robulus "E"	DEF	AT	3
8220 / 7118	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	3
8730 / 7497	DEF	AT	DEF	AT	2
8850 / 7586	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	3
9030 / 7717	DEF	AT	DEF	AT	2
9900 / 8357	DEF	AT Arenaceous fauna (local marker)	DEF	AT	2
10200 / 8578	DEF	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	3
10470 / 8779	DEF	AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	AT	3
10740 / 8979	DEF	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	3
10950 / 9134	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
11130 / 9269	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	3
11220 / 9336	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	3
11490 / 9537	DEF	AT	DEF	AT	4
11640 / 9648	DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
11850 / 9805	DEF	AT	DEF	AT	3
12390 / 10207	DEF	AT reworked material	DEF	AT	3
12450 / 10251	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	3
12540 / 10318	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	3
12690 / 10429	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	3
12720 / 10452	DEF	AT	DEF	AT	4
12780 / 10496	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 1167

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 786 Date of Summary: 05-MAR-1998 First Sample Examined: 8010 Lease Number: G12119 Source of Paleo: OPERATOR **Borehole MD:** 13550 Well Name: A006 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 11054 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 608164030200 **Rkb Elevation:** 80 Paleo Report Num: 2 of 2 **Sample Range:** 8010 - 13552 1751 Water Depth: Public Info Code: Y 14-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

MD / TVD	Paleo Top Description		<u>Ecozone</u>
12870 / 10562	DEF AT	F AT	3
13140 / 10759	DEF AT DE	F AT	4
13170 / 10781	DEF AT local marker foram increase DE	F AT	4
13469 / 10996	DEF AT Middle Miocene (Langhian) Globigerinoides sicanus DE	F AT	4
13470 / 10997	DEF AT Middle Miocene (Langhian) Globigerinatella insueta	F AT	5
13552 /	DEF AT last sample examined DE	F AT	5

GEOLOGIC 02-FEB-2011

PAGE: 1168

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 823 7375 Date of Summary: 30-MAY-2000 First Sample Examined: Lease Number: G16549 Source of Paleo: OPERATOR 16580 **Borehole MD:** Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13537 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608164035500 **Rkb Elevation:** 148 Paleo Report Num: 1 of 2 **Sample Range:** 7375 - 16580 Water Depth: 1130 Public Info Code: Y 24-APR-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description			<b>Ecozone</b>
7375 / 6227	DEF AT first sample examined	DEF	= AT	6
7980 / 6660	POS IN Upper Miocene (Messinian) Globorotalia menardii (coilin	ng change right/left) DEF	= AT	6
8250 / 6852	DEF AT	DEF	= AT	5
9630 / 7792	DEF AT Upper Miocene (Tortonian) Robulus "E"	DEF	= AT	5
9840 / 7928	DEF AT	DEF	= AT	4
10080 / 8085	DEF AT	DEF	= AT	5
10380 / 8292	DEF AT	DEF	= AT	4
11490 / 9061	DEF AT	DEF	= AT	5
12360 / 9667	DEF AT	DEF	= AT	4
14040 / 11047	DEF AT Upper Miocene (Tortonian) Bolivina thalmanni	DEF	= AT	4
14580 / 11555	DEF AT	DEF	= AT	5
14820 / 11791	DEF AT Upper Miocene (Tortonian) Uvigerina 3	DEF	= AT	5
15720 / 12681	DEF AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	= AT	5
16580 / 13538	DEF AT last sample examined	DEF	= AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1169

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 823 Date of Summary: 30-MAY-2000 First Sample Examined: 7375 Lease Number: G16549 Source of Paleo: OPERATOR 16580 **Borehole MD:** 13537 Well Name: A004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608164035500 **Rkb Elevation:** 148 Paleo Report Num: 2 of 2 **Sample Range:** 7375 - 16580 Water Depth: 1130 Public Info Code: Y 24-APR-2010 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7375 / 6227	DEF	AT first sample examined	DEF	AT
7440 / 6273	POS	IN Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
8040 / 6703	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "B"	DEF	AT
9660 / 7812	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
11370 / 8977	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
13440 / 10506	DEF	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
14057 / 11062	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT
14430 / 11410	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
14850 / 11820	DEF	AT Middle Miocene (Serravallian) Coccolithus miopelagicus	DEF	AT
16050 / 13009	POS	IN Middle Miocene (Serravallian) Discoaster kugleri	DEF	AT
16580 / 13538	DEF	AT last sample examined	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1170

**Borehole MD:** 

**Borehole TVD:** 

0

9730

9310

1722

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 825 Date of Summary: 25-AUG-1998 First Sample Examined:

Lease Number: G05778 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 004 Paleo Done By: OPERATOR

API Well Number: 608164033200 Drilling Operator: ORYX ENERGY COMPANY Rkb Elevation: 72

Police Person Number 1 of 1

Paleo Report Num:1 of 1Sample Range:0 - 0Water Depth:Public Info Code:Y 11-SEP-2008Ecozone Eq MMS:Paleo ID:

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

9345 / 8973 DEF IN Upper Miocene (Tortonian) Cibicides carstensi DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1171

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 825	Date of Summary: 05-NOV-1998	First Sample Examined:	0
Lease Number: G05778	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9690
Well Name: 004	Paleo Done By: OPERATOR	Borehole TVD:	9298
API Well Number: 608164033201	Drilling Operator: ORYX ENERGY COMPANY	Rkb Elevation:	72
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	1722
Public Info Code: Y 16-SEP-2008	Ecozone Eq MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7630 / 7437	DE	AT Upper Miocene (Tortonian) Discorbis 12	DEF A	ΛT
8081 / 7848	DE	AT Upper Miocene (Tortonian) Textularia "L"	DEF A	ΛT
9320 / 8966	DE	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF A	ΛT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1172

0

10952

8844

1711

001

**Ecozone** 

72

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 825 Date of Summary: 28-SEP-1999

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 005 Paleo Done By: OPERATOR

API Well Number: 608164034400 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 28-AUG-2009 Ecozone Eq MMS:

Remark: In=sand

Lease Number: G05778

MD / TVD Paleo Top Description

9375 / 8699 DEF IN Upper Miocene (Tortonian) Cibicides carstensi DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1173

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 826 Date of Summary: 03-FEB-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G06888 **Borehole MD:** 8315 Well Name: A008 Paleo Done By: OPERATOR **Borehole TVD:** 6119 **Drilling Operator:** ORYX ENERGY COMPANY **API Well Number:** 608164032400 **Rkb Elevation:** 72 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 1932 Water Depth:

Remark: Calcareous nannofossil report, in=sand

Public Info Code: Y 15-AUG-2008

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7650 / 5780	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF A	ΑT
8026 / 5971	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF A	ΑT

**Ecozone Eq MMS:** 

GEOLOGIC 02-FEB-2011

PAGE: 1174

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 826 Date of Summary: 22-JAN-2002 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G06888 **Borehole MD:** 11850 Well Name: A009 Paleo Done By: OPERATOR **Borehole TVD:** 10808 **Drilling Operator:** ORYX ENERGY COMPANY **API Well Number:** 608164032501 **Rkb Elevation:** 72 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 1932 Water Depth: Public Info Code: Y 25-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
5576 / 5155	DEF IN Upper Miocene (Messinian) Discoaster berggrenii	DEF AT
6681 / 6036	DEF IN Upper Miocene (Tortonian) Cristellaria "K"	DEF AT
8098 / 7289	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT
8827 / 7969	DEF AT Upper Miocene (Tortonian) Textularia "L"	DEF AT
11612 / 10582	DEF IN Middle Miocene (Serravallian) Textularia "W"	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1175

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 826 Date of Summary: 14-JAN-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G06888 **Borehole MD:** 12814 Well Name: A010 Paleo Done By: OPERATOR **Borehole TVD:** 11084 **Drilling Operator:** ORYX ENERGY COMPANY **API Well Number:** 608164032601 **Rkb Elevation:** 72 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 1932 Water Depth: Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD / T	<u>VD</u>		Paleo Top Description		<b>Ecozone</b>
5548 / 5	5536	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
6897 / 6	6633	DEF I	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
8590 / 7	7685 [	DEF .	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
9866 / 8	3458 [	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT
10460 / 8	3896 [	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT
12355 / 10	)659 [	DEF I	IN Middle Miocene (Serravallian) Textularia "W"	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1176

0

10952

9985

3480

001

84

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 872 Date of Summary: 13-JAN-1999

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: 001 Paleo Done By: OPERATOR

API Well Number: 608164033600 Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 31-JUL-2008 Ecozone Eq MMS:

Remark: In=sand

Lease Number: G19907

MD / TVD Paleo Top Description Ecozone

10515 / 9723 DEF IN Upper Miocene (Tortonian) Textularia "L" DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1177

**Borehole MD:** 

**Borehole TVD:** 

0

12308

9996

84

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 872 Date of Summary: 13-JAN-1999

First Sample Examined: Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Lease Number: G19908 Well Name: SS001 Paleo Done By: OPERATOR

**Drilling Operator: SHELL DEEPWATER DEVELOPMENT INC** API Well Number: 608164033601 **Rkb Elevation:** 

0 - 0 Paleo Report Num: 1 of 1 Sample Range:

Water Depth: 3463 Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD **Paleo Top Description Ecozone** 

DEF IN Upper Miocene (Tortonian) Cibicides carstensi 11611 / 9710 DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1178

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 956 Date of Summary: 13-NOV-1999 23970 First Sample Examined: Lease Number: G06893 Source of Paleo: OPERATOR 26228 **Borehole MD:** Well Name: A013 Paleo Done By: TOTAL BIOSTRATIGRPHIC SERVICES, INC. **Borehole TVD:** 13500 **Drilling Operator: SHELL DEEPWATER PRODUCTION INC API Well Number:** 608164025201 **Rkb Elevation:** 191 Paleo Report Num: 1 of 2 **Sample Range:** 23970 - 26228 3214 Water Depth: Public Info Code: Y 28-NOV-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

### Remark:

MD / TVD		Paleo Top Description			<b>Ecozone</b>
23970 / 12753	DEF	AT first sample examined	DEF	IN	3
24000 / 12761	DEF	IN Upper Miocene (Tortonian) Textularia 6	DEF	IN	3
24030 / 12769	DEF	IN Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	IN	3
24180 / 12810	DEF	IN Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	IN	3
24210 / 12818	POS	IN Upper Miocene (Tortonian) Bolivina thalmanni	DEF	IN	3
24240 / 12826	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
24330 / 12852	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
24390 / 12870	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
24450 / 12888	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
24570 / 12926	DEF	AT turbid water facies	POS	AT	4
24990 / 13071	DEF	AT faunal change (no faunal increase)	DEF	ΑT	4
25050 / 13093	DEF	AT turbid water facies	DEF	ΑT	4
25080 / 13104	POS	IN Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	ΑT	5
25380 / 13209	POS	AT reworked material	DEF	ΑT	5
25381 / 13209	POS	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	5
25650 / 13302	POS	AT reworked material	DEF	ΑT	5
25770 / 13342	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	ΑT	5
25920 / 13394	DEF	AT local marker foram increase	DEF	ΑT	5
26070 / 13446	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi lobata	DEF	AT	5
26228 / 13500	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC

02-FEB-2011 PAGE: 1179

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 956 Date of Summary: 30-NOV-1999 First Sample Examined: 23970 26228 Lease Number: G06893 Source of Paleo: OPERATOR **Borehole MD:** Well Name: A013 Paleo Done By: BECK BIOSTRAT INC. **Borehole TVD:** 13500 **Drilling Operator: SHELL DEEPWATER PRODUCTION INC API Well Number:** 608164025201 **Rkb Elevation:** 191 Paleo Report Num: 2 of 2 **Sample Range:** 23970 - 26220 3214 Water Depth: Public Info Code: Y 28-NOV-2009 Ecozone Eq MMS: N Paleo ID: 001

Remark: Calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
23970 / 12753	DEF AT first sample examined	DEF AT
24090 / 12785	POS IN Upper Miocene (Tortonian) Discoaster bollii	DEF AT
24270 / 12835	POS AT Upper Miocene (Tortonian) Discoaster kugleri	DEF AT
24990 / 13071	POS AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF AT
26220 / 13498	DEF AT last sample examined	DEF AT

GEOLOGIC

Paleo ID:

6760

9848

002

GULF OF MEXICO REGION PAGE: 1180

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 1003 Date of Summary: 04-NOV-1999 First Sample Examined:
Lease Number: G21160 Source of Paleo: OPERATOR Borehole MD:
Well Name: 001 Paleo Done By: OPERATOR Borehole TVD:

 Well Name:
 001
 Paleo Done By: OPERATOR
 Borehole TVD:
 9848

 API Well Number:
 608164035000
 Drilling Operator: TOTAL E&P USA INC
 Rkb Elevation:
 78

 Paleo Report Num:
 1 of 2
 Sample Range:
 6760 - 9730
 Water Depth:
 4942

Public Info Code: Y 22-NOV-2009 Ecozone Eq MMS:

Remark: Calcareous nannofossil report, 9580 to 9670=mixed late to middle Miocene flora

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6760 / 6760	DEF	AT first sample examined	DEF	AT
6790 / 6790	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
7360 / 7360	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
9010 / 9010	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
9280 / 9280	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
9281 / 9281	POS	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT
9580 / 9580	POS	AT salt weld	DEF	AT
9730 / 9730	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1181

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VK 1003	Date of Summary: 06-JAN-2000	First Sample Examined: 6760	
Lease Number: G21160	Source of Paleo: OPERATOR	Borehole MD: 9848	
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD: 9848	
API Well Number: 608164035000	Drilling Operator: TOTAL E&P USA INC	Rkb Elevation: 78	
Paleo Report Num: 2 of 2	<b>Sample Range:</b> 6760 - 9730	Water Depth: 4942	
Public Info Code: Y 22-NOV-2009	Ecozone Ea MMS: Y	<b>Paleo ID:</b> 001	

### Remark:

MD / TVD		Paleo Top Description		Eco	zone
6760 / 6760	DEF	AT first sample examined	DEF	AT	6
6761 / 6761	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
9370 / 9370	POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	6
9730 / 9730	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 1182

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VK 1003 Date of Summary: 06-JAN-2000 First Sample Examined: 9684 Lease Number: G21160 Source of Paleo: OPERATOR **Borehole MD:** 13400 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13391 Drilling Operator: TOTAL E&P USA INC **API Well Number:** 608164035001 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 9684 - 13420 4942 Water Depth: Public Info Code: Y 18-JAN-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u> </u>	cozone
9684 / 9676	DEF	AT first sample examined	DEF	AT	6
9730 / 9722	DEF	IN Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	6
10390 / 10382	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	6
10840 / 10832	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	6
10870 / 10862	DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	6
10960 / 10952	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	AT	6
11860 / 11852	DEF	AT reworked material	DEF	AT	6
13270 / 13261	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT	6
13420 /	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011

PAGE: 1183

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 27 Date of Summary: 13-APR-2004 First Sample Examined: 8000 Lease Number: G24820 Source of Paleo: OPERATOR **Borehole MD:** 15670 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15409 **Drilling Operator:** XTO OFFSHORE INC **API Well Number:** 177054119400 **Rkb Elevation:** 85 Paleo Report Num: 1 of 1 **Sample Range:** 8000 - 15670 13 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
8000 / 8000	DEF	AT first sample examined	DEF II	N 3
8690 / 8690	POS	AT Middle Miocene (Serravallian) Robulus 5 / 55	DEF II	N 3
8870 / 8870	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF II	N 3
8960 / 8960	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF I	N 3
9530 / 9530	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF I	N 3
9650 / 9650	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF II	N 3
10400 / 10400	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF II	N 3
11270 / 11263	POS	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF II	N 3
12600 / 12527	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF II	N 3
13050 / 12955	DEF	AT Middle Miocene (Langhian) Cibicides 38	DEF II	N 3
15670 / 15409	DEF	AT last sample examined	DEF II	N 3

GEOLOGIC

02-FEB-2011 PAGE: 1184

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 56 Date of Summary: 12-APR-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G17888 **Borehole MD:** 10375 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 10375 **Drilling Operator: SENECA RESOURCES CORPORATION API Well Number:** 177054111200 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 28 Water Depth: Public Info Code: Y 06-APR-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u>MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
7708 / 7708	DEF IN Upper Miocene (Tortonian) Discorbis 12	DEF AT
8685 / 8685	DEF AT Upper Miocene (Tortonian) Textularia "L"	DEF AT
9428 / 9428	DEF IN Upper Miocene (Tortonian) Cibicides carstensi	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1185

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 65 Date of Summary: 20-AUG-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G03327 **Borehole MD:** 10200 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 10012 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 177054037101 **Rkb Elevation:** 67 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 34 Water Depth: Public Info Code: Y 20-AUG-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6280 / 6268	DEF IN Lower Pliocene (Zanclian) Buliminella 1	DEF AT
6583 / 6552	DEF IN Upper Miocene (Tortonian) Robulus "E"	DEF AT
7110 / 7028	DEF IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
7420 / 7305	DEF IN Upper Miocene (Tortonian) Amphistegina "E"	DEF AT
8350 / 8173	DEF IN Upper Miocene (Tortonian) Discorbis 12	DEF AT
8719 / 8536	DEF IN Upper Miocene (Tortonian) Textularia "L"	DEF AT
9408 / 9221	DEF IN Upper Miocene (Tortonian) Cibicides carstensi	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1186

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 84 Date of Summary: 09-DEC-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G03124 **Borehole MD:** 14100 Well Name: B001 Paleo Done By: OPERATOR **Borehole TVD:** 14091 Drilling Operator: BURLINGTON RESOURCES OFFSHORE INC **API Well Number: 177054110600 Rkb Elevation:** 11 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 52 Water Depth: Public Info Code: Y 24-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

_	MD / TVD		Paleo Top Description		<u>Ecozone</u>
	10947 / 10946	DEF	IN Upper Miocene (Tortonian) Textularia "L"	DEF	AT
	13135 / 13130	DEF	IN Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT
	13409 / 13403	DEF	IN Upper Miocene (Tortonian) Uvigerina 3	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1187

0

11800

11004

120

48

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 84 Date of Summary: 03-JUL-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G03124

Well Name: B002 Paleo Done By: OPERATOR

Drilling Operator: BURLINGTON RESOURCES OFFSHORE INC **API Well Number:** 177054111800

0 - 0

Paleo Report Num: 1 of 1 Sample Range: Public Info Code: Y 24-JUL-2008 **Ecozone Eq MMS:** 

Remark: In=sand

MD / TVD **Paleo Top Description Ecozone** 

DEF IN Upper Miocene (Tortonian) Textularia "L" 11576 / 10806 DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1188

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 114	Date of Summary: 19-JUL-2000	First Sample Examined:	0
Lease Number: G17895	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10900
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	9585
API Well Number: 177054109200	Drilling Operator: WESTPORT RESOURCES CORPORATION	Rkb Elevation:	116
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	57
Public Info Code: Y 27-OCT-2008	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6540 / 6539	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF A	ΛT
7110 / 7109	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF A	ΛT
7890 / 7855	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF A	ΛT
8550 / 8365	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF A	ΛT

GEOLOGIC 02-FEB-2011

PAGE: 1189

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 131	Date of Summary: 10-AUG-1999	First Sample Examined:	0
Lease Number: 00775	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11892
Well Name: D001	Paleo Done By: OPERATOR	Borehole TVD:	11850
API Well Number: 177054108300	<b>Drilling Operator: STONE PETROLEUM CORPORATION</b>	Rkb Elevation:	90
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	60
Public Info Code: Y 15-JUN-2009	Ecozone Ea MMS:	Paleo ID:	001

MD / TVD	Paleo Top Description		<b>Ecozone</b>
7390 / 7383 D	F AT Upper Miocene (Messinian) Textularia "X"	DEF	AT
7600 / 7593 D	F AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT
10450 / 10410 D	F AT Upper Miocene (Tortonian) Textularia 6	DEF	AT
10540 / 10499 D	F AT Upper Miocene (Tortonian) Bigenerina irregularis / 6	DEF	AT
11050 /11008 D	F AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
11410 / 11368 D	F AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1190

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 131 Date of Summary: 09-JAN-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: 00775 **Borehole MD:** 15170 Well Name: E001 Paleo Done By: OPERATOR **Borehole TVD:** 15170 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 177054109700 **Rkb Elevation:** 95 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 60 Water Depth: Public Info Code: Y 16-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6300 / 6299	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT
9780 / 9771	DEF	AT Upper Miocene (Tortonian) Textularia 6	DEF	AT
11070 / 11061	DEF	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT
11940 / 11931	DEF	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT
12830 / 12820	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
14280 / 14267	DEF	AT Upper Miocene (Tortonian) Cyclammina 3	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1191

0

14040

13813

117

82

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 156 Date of Summary: 21-SEP-2001

Lease Number: G21597 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A002 Paleo Done By: OPERATOR

API Well Number: 177054042202 Drilling Operator: NEWFIELD EXPLORATION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 20-APR-2010 Ecozone Eq MMS:

Remark:

MD / TVD Paleo Top Description Ecozone

13470 / 13243 DEF AT Upper Miocene (Tortonian) Robulus "E" DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1192

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 196 Date of Summary: 05-OCT-2000 First Sample Examined: 9990 Lease Number: G19760 Source of Paleo: OPERATOR **Borehole MD:** 14798 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14796 Drilling Operator: MCMORAN OIL & GAS LLC **API Well Number:** 177054112300 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 9990 - 14820 113 Water Depth: Public Info Code: Y 15-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecoz	zone
9990 / 9990	DEF	AT first sample examined	DEF	AT	3
9991 / 9991	DEF	IN Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	3
10350 / 10350	POS	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	3
10530 / 10530	POS	AT Cyclammina cancellata (local marker)	POS	AT	4
10590 / 10590	POS	AT Lower Pliocene (Zanclian) Uvigerina rustica	DEF	AT	4
10680 / 10680	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	4
12060 / 12059	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	4
12840 / 12839	POS	AT Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	AT	4
12930 / 12929	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
13560 / 13559	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
14820 /	DEF	AT last sample examined	DEF	AT	4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1193

0

13163

12468

117

126

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 215 Date of Summary: 30-MAR-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: B003 Paleo Done By: OPERATOR

API Well Number: 177052002001 Drilling Operator: NEWFIELD EXPLORATION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 29-JUN-2008 Ecozone Eq MMS:

Remark: In=sand

Lease Number: G01140

MD / TVD Paleo Top Description Ecozone

12660 / 12017 DEF IN Lower Pliocene (Zanclian) Buliminella 1 DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1194

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 227 Date of Summary: 01-FEB-2005 4540 First Sample Examined: Lease Number: G24847 Source of Paleo: OPERATOR 17455 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17435 **Drilling Operator: NOBLE ENERGY INC API Well Number:** 177054121600 **Rkb Elevation:** 81 Paleo Report Num: 1 of 2 **Sample Range:** 4540 - 17455 Water Depth: 125 Public Info Code: Y 31-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4540 / 4540	DEF	AT first sample examined	DEF	AT	2
5020 / 5020	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	2
6070 / 6070	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	2
7780 / 7780	DEF	AT	DEF	AT	3
8020 / 8020	POS	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	3
9250 / 9250	POS	IN Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	3
9550 / 9550	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	3
10600 / 10599	DEF	AT	DEF	AT	4
10630 / 10629	DEF	AT Lower Pliocene (Zanclian) Buliminella 1	DEF	AT	4
11200 / 11198	DEF	AT	DEF	AT	3
11710 / 11708	POS	IN Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	3
12640 / 12637	DEF	AT	DEF	AT	4
13210 / 13207	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	AT	4
13560 / 13557	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
14290 / 14287	DEF	AT	DEF	AT	5
14770 / 14767	DEF	AT	DEF	AT	6
14860 / 14857	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	6
15970 / 15961	POS	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	6
16030 / 16020	DEF	AT Upper Miocene (Tortonian) Melonis pompilioides (increase)	DEF	AT	6
16330 / 16313	DEF	AT sample gap top	POS	AT	6
16420 / 16402	DEF	AT sample gap bottom	DEF	AT	6
17455 / 17435	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 1195

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 227 Date of Summary: 01-FEB-2005 First Sample Examined: 4540 Lease Number: G24847 Source of Paleo: OPERATOR **Borehole MD:** 17455 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17435 **Drilling Operator: NOBLE ENERGY INC API Well Number:** 177054121600 **Rkb Elevation:** 81 Paleo Report Num: 2 of 2 **Sample Range:** 4540 - 17455 125 Water Depth: Public Info Code: Y 31-MAY-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
4540 / 4540	DEF	AT first sample examined	DEF	AT
5080 / 5080	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT
5980 / 5980	POS	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6190 / 6190	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
6670 / 6670	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
7960 / 7960	POS	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
8170 / 8170	POS	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
9220 / 9220	POS	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT
10810 / 10808	POS	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT
13210 / 13207	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT
13240 / 13237	POS	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	AT
14500 / 14497	POS	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
15220 / 15217	POS	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
15370 / 15367	POS	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT
16029 / 16019	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
16030 / 16020	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT
16330 / 16313	DEF	AT sample gap top	DEF	AT
16420 / 16402	DEF	AT sample gap bottom	DEF	AT
16780 / 16760	POS	AT Upper Miocene (Tortonian) Discoaster prepentaradiatus	DEF	AT
17455 / 17435	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1196

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 252	Date of Summary: 27-OCT-1999	First Sample Examined:	0
Lease Number: G05431	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	13949
Well Name: F001	Paleo Done By: OPERATOR	Borehole TVD:	13317
<b>API Well Number:</b> 177064054703	<b>Drilling Operator:</b> EL PASO EXPLORATION & PRODUCTION MANAGEMEN	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	149
Public Info Code: Y 01-OCT-2009	Ecozone Ea MMS:	Paleo ID:	001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10590 / 10578	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT
11070 / 11010	DEF AT Lower Pliocene (Zanclian) Buliminella 1	DEF AT
11280 / 11181	DEF AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1197

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 253 Date of Summary: 26-AUG-1999 First Sample Examined: 1530 Lease Number: G17912 Source of Paleo: OPERATOR 15634 **Borehole MD:** Well Name: H002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14380 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number: 177064083800 Rkb Elevation:** 94 Paleo Report Num: 1 of 2 **Sample Range:** 1530 - 15634 Water Depth: 155 Public Info Code: Y 10-SEP-2009 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
1530 / 1530	DEF	AT first sample examined	DEF	AT	2
2070 / 2068	DEF	AT sample gap top	POS	AT	2
2340 / 2335	DEF	AT sample gap bottom	DEF	AT	2
5550 / 5506	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	ΑT	2
5910 / 5866	POS	AT Upper Pliocene (Gelasian) Globorotalia praehirsuta	DEF	AT	3
6030 / 5986	DEF	AT faunal change (no faunal increase)	DEF	AT	2
7230 / 7165	POS	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	2
8580 / 8383	POS	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF	ΑT	2
8670 / 8461	POS	AT local marker deep water fauna	DEF	AT	3
8730 / 8514	POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	3
11400 / 10786	DEF	AT Bathysiphon fauna	DEF	ΑT	4
11430 / 10811	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	4
12990 / 12118	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	4
13080 / 12193	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	4
13320 / 12396	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	5
13800 / 12803	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	5
14130 / 13086	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	5
14640 / 13522	DEF	AT	DEF	AT	4
15634 / 14380	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011

PAGE: 1198

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 253 1530 Date of Summary: 26-AUG-1999 First Sample Examined: Lease Number: G17912 Source of Paleo: OPERATOR 15634 **Borehole MD:** Well Name: H002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14380 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number: 177064083800 Rkb Elevation:** 94 Paleo Report Num: 2 of 2 **Sample Range:** 1530 - 15634 Water Depth: 155 Public Info Code: Y 10-SEP-2009 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
1530 / 1530	DEF	AT first sample examined	DEF	AT
2070 / 2068	DEF	AT sample gap top	DEF	AT
2340 / 2335	DEF	AT sample gap bottom	DEF	AT
3060 / 3043	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
3780 / 3751	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
5880 / 5836	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
6990 / 6938	DEF	AT Upper Pliocene (Gelasian) Discoaster pentaradiatus	DEF	AT
7020 / 6967	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
8730 / 8514	POS	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT
10890 / 10354	POS	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT
13290 / 12371	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT
14130 / 13086	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT
15634 / 14380	DEF	AT last sample examined	DEF	AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1199

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 256 Date of Summary: 23-JUL-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G01153 **Borehole MD:** 10385 Well Name: D003 Paleo Done By: OPERATOR **Borehole TVD:** 10026 **Drilling Operator: STONE ENERGY CORPORATION API Well Number:** 177064008101 **Rkb Elevation:** 94 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 160

Remark:

Public Info Code: Y 05-JUL-2009

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7821 / 7485	DEF AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF AT
9670 / 9311	DEF AT Upper Pliocene (Piacenzian) Cyclammina sp.	DEF AT

**Ecozone Eq MMS:** 

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1200

**Borehole MD:** 

0

12551

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 264 Date of Summary: 29-DEC-1999 First Sample Examined:

Lease Number: G15199 Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name:A001Paleo Done By:OPERATORBorehole TVD:12551

API Well Number: 177064082600 Drilling Operator: EL PASO PRODUCTION GOM INC Rkb Elevation: 87

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 169

Public Info Code: Y 13-MAR-2009 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

12384 / 12384 DEF IN Lower Pliocene (Zanclian) Buliminella 1 DEF AT

GEOLOGIC

PAGE: 1201

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 279 Date of Summary: 03-MAR-1998 First Sample Examined: 12153 Lease Number: G11881 Source of Paleo: OPERATOR **Borehole MD:** 13948 Well Name: A011 Paleo Done By: THOMAS REILLY **Borehole TVD:** 12310 **Drilling Operator:** W & T OFFSHORE INC **API Well Number: 177064080801 Rkb Elevation:** 128 Paleo Report Num: 1 of 2 **Sample Range:** 12153 - 13938 180 Water Depth: Public Info Code: Y 19-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
12153 / 10629	DEF	AT first sample examined	DEF IN	N 2
12154 / 10630	POS	IN Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF IN	N 2
12273 / 10722	DEF	AT	DEF IN	N 1
12620 / 11009	DEF	AT Eggerella sp. (local marker)	DEF IN	N 1
12747 / 11126	DEF	AT Arenaceous fauna (local marker)	DEF IN	N 1
13408 / 11771	DEF	AT Cyclammina sp. (local marker)	DEF IN	N 1
13845 / 12207	DEF	AT Eggerella sp. (local marker)	DEF IN	N 1
13908 / 12270	DEF	AT last sample examined	DEF IN	N 1

GEOLOGIC

02-FEB-2011 PAGE: 1202

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	\/R 270	Date of Summary: 03-MAR-1998	First Sample Examined:	12153
Alea Block.	VIC 213		i iist Sainpie Examineu.	12100
Lease Number:	G11881	Source of Paleo: OPERATOR	Borehole MD:	13948
Well Name:	A011	Paleo Done By: THOMAS REILLY	Borehole TVD:	12310
<b>API Well Number:</b>	177064080801	Drilling Operator: W & T OFFSHORE INC	Rkb Elevation:	128
Paleo Report Num:	2 of 2	Sample Range: 12153 - 13938	Water Depth:	180
Public Info Code:	Y 19-MAR-2008	Ecozone Eq MMS:	Paleo ID:	002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
12153 / 10629	DEF AT first sample examined	DEF AT
13845 / 12207	DEF AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF AT
13938 / 12300	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1203

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 302 Date of Summary: 30-JUL-2004 4280 First Sample Examined: Lease Number: G03138 Source of Paleo: OPERATOR **Borehole MD:** 9981 Well Name: JA002 Paleo Done By: OPERATOR **Borehole TVD:** 9292 **Drilling Operator: NEXEN PETROLEUM USA INC API Well Number:** 177064071101 **Rkb Elevation:** 106 **Sample Range:** 4280 - 9980 Paleo Report Num: 1 of 1 Water Depth: 196 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report done by Morin Biostratigraphic Services and Ragan Biostrat

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4280 / 4278	DEF	AT first sample examined	DEF	AT	2
4281 / 4279	DEF	IN Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	2
4400 / 4398	DEF	AT	DEF	AT	1
4440 / 4438	DEF	AT	DEF	IN	1
4540 / 4538	DEF	AT	DEF	IN	2
4580 / 4578	POS	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	IN	2
4680 / 4678	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	IN	2
5440 / 5438	DEF	IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	IN	2
5480 / 5478	DEF	AT	DEF	ΑT	3
5500 / 5498	DEF	AT	DEF	IN	2
5520 / 5518	DEF	AT	DEF	AT	2
6160 / 6158	DEF	AT	DEF	ΑT	3
6180 / 6178	DEF	AT	DEF	ΑT	2
6240 / 6238	POS	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	ΑT	2
6580 / 6578	DEF	AT local marker foram increase	DEF	ΑT	2
6840 / 6836	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	1
7000 / 6991	DEF	AT	DEF	ΑT	2
7060 / 7048	DEF	AT local marker foram increase	DEF	ΑT	2
7160 / 7143	DEF	AT	DEF	IN	3
7220 / 7199	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	3
7260 / 7236	DEF	AT	DEF	IN	2
7320 / 7290	DEF	AT	DEF	AT	2

GEOLOGIC 02-FEB-2011

PAGE: 1204

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 302 Date of Summary: 30-JUL-2004 First Sample Examined: 4280 Source of Paleo: OPERATOR Lease Number: G03138 **Borehole MD:** 9981 Well Name: JA002 Paleo Done By: OPERATOR **Borehole TVD:** 9292 **Drilling Operator: NEXEN PETROLEUM USA INC API Well Number:** 177064071101 **Rkb Elevation:** 106 Paleo Report Num: 1 of 1 **Sample Range:** 4280 - 9980 196 Water Depth:

Public Info Code: Y 20-JUL-2010 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>Ec</u>	cozone
7840 / 7720	DEF	AT	DEF	AT	1
7980 / 7822	DEF	AT	DEF	AT	2
8040 / 7865	DEF	AT Cyclammina sp. (local marker)	DEF	AT	3
8100 / 7909	DEF	AT	DEF	IN	3
8200 / 7981	DEF	AT	DEF	AT	3
8360 / 8095	DEF	AT	DEF	IN	3
8480 / 8184	DEF	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	IN	3
8520 / 8214	DEF	AT local marker foram increase	DEF	AT	4
8620 / 8287	DEF	AT	DEF	IN	3
8800 / 8418	DEF	AT	DEF	AT	3
9060 / 8610	POS	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	4
9320 / 8803	DEF	AT	DEF	AT	3
9460 / 8906	DEF	AT	DEF	AT	4
9560 / 8980	DEF	AT local marker foram increase	DEF	AT	4
9780 / 9145	DEF	AT	DEF	AT	3
9979 / 9291	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	IN	3
9980 / 9292	DEF	AT last sample examined	DEF	IN	3

GEOLOGIC 02-FEB-2011

PAGE: 1205

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 302 9460 Date of Summary: 30-JUL-2004 First Sample Examined: Lease Number: G03138 Source of Paleo: OPERATOR 10589 **Borehole MD:** Well Name: JA002 Paleo Done By: OPERATOR **Borehole TVD:** 9697 **Drilling Operator: NEXEN PETROLEUM USA INC API Well Number:** 177064071102 **Rkb Elevation:** 106 **Sample Range:** 9460 - 10580 Paleo Report Num: 1 of 1 Water Depth: 196 Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report done by Morin Biostratigraphic Services and Ragan Biostrat

MD/	TVD		Paleo Top Description		<u>Ec</u>	ozone
9460 /	8906	DEF	AT first sample examined	DEF	AT	3
9500 /	8935	DEF	AT	DEF	IN	3
9540 /	8963	DEF	AT local marker foram increase	DEF	IN	3
9580 /	8992	DEF	AT	DEF	AT	3
9740 /	9108	DEF	AT	DEF	AT	4
9760 /	9122	DEF	AT	DEF	AT	3
9800 /	9151	DEF	AT	DEF	IN	3
9820 /	9166	DEF	AT	DEF	AT	3
10020 /	9309	DEF	AT	DEF	IN	3
10180 /	9419	DEF	AT	DEF	AT	3
10360 /	9542	DEF	AT	DEF	AT	2
10500 /	9637	DEF	AT	DEF	IN	2
10520 /	9651	DEF	AT	DEF	AT	2
10580 /	9691	DEF	AT last sample examined	DEF	AT	2

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1206

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 306	Date of Summary: 28-AUG-2000	First Sample Examined:	0
Lease Number: G21095	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	8128
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	8127
API Well Number: 177064084800	Drilling Operator: IP PETROLEUM COMPANY INC	Rkb Elevation:	106
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	202
Public Info Code: Y 18-NOV-2008	Ecozone Ea MMS:	Paleo ID:	001

<u> </u>		Paleo Top Description		<u>Ecozone</u>
7130 / 7129	DE	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF A	ΛT
7632 / 7631	DE	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF A	ΛT
8070 / 8069	DE	F AT salt	DEF A	ΛT

GEOLOGIC 02-FEB-2011 PAGE: 1207

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 309 Date of Summary: 18-JUN-1998 First Sample Examined: 6000 Lease Number: G16310 Source of Paleo: OPERATOR **Borehole MD:** 9357 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9200 **Drilling Operator: SENECA RESOURCES CORPORATION API Well Number:** 177064081200 **Rkb Elevation:** 66 Paleo Report Num: 1 of 1 **Sample Range:** 6000 - 9357 206 Water Depth: Public Info Code: Y 18-MAY-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6000 / 5999	DEF	AT first sample examined	POS A	T 3
6540 / 6539	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF A	T 3
7260 / 7259	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF A	T 3
8220 / 8199	POS	AT Upper Pliocene (Piacenzian) Haplophragmoides emaciatum	DEF A	T 4
8310 / 8281	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF A	T 4
8640 / 8582	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF A	T 4
9357 / 9201	DEF	AT last sample examined	DEF A	T 4

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1208

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 326 Date of Summary: 14-FEB-2000 First Sample Examined: 0

Lease Number:G21096Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:8523

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD: 8522

API Well Number: 177064085000 Drilling Operator: IP PETROLEUM COMPANY INC Rkb Elevation: 106

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 215

Public Info Code: Y 24-JAN-2010 Ecozone Eq MMS: Paleo ID: 001

Remark: In=sand

MD / TVD Paleo Top Description Ecozone

8102 / 8102 DEF IN Upper Pliocene (Gelasian) Lenticulina 1 DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1209

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: VR 356 Date of Summary: 31-JAN-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G17921 **Borehole MD:** 6617 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 4092 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177064084500 **Rkb Elevation:** 93 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 262 Water Depth: Public Info Code: Y 22-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2316 / 2102	DEF IN Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
5208 / 3435	DEF IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1210

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 356	Date of Summary: 05-APR-2000	First Sample Examined:	0
Lease Number: G17921	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9912
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	6850
<b>API Well Number:</b> 177064085100	Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN	<b>Rkb Elevation:</b>	93
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	262
Public Info Code: Y 24-FEB-2010	Ecozone Eq MMS:	Paleo ID:	001

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2964 / 2064	DEF AT Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
6450 / 3994	DEF AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF AT
9760 / 6710	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1211

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 379	Date of Summary: 17-MAY-1999	First Sample Examined:	7720
Lease Number: G13606	Source of Paleo: OPERATOR	Borehole MD:	8368
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	4595
API Well Number: 177064082800	<b>Drilling Operator: TEXACO EXPLORATION AND PROD</b>	Rkb Elevation:	131
Paleo Report Num: 1 of 1	<b>Sample Range:</b> 7720 - 8140	Water Depth:	327
Public Info Code: Y 30-MAY-2009	Ecozone Eg MMS: Y	Paleo ID:	002

### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
7720 / 4257	DEF	AT first sample examined	DEF	IN	2
7721 / 4257	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF	IN	2
7780 / 4286	DEF	AT local marker foram increase	DEF	IN	3
7810 / 4301	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	3
7900 / 4347	DEF	AT Lower Pleistocene (Calabrian) Angulogerina magna	DEF	AT	3
8140 / 4474	DEF	AT last sample examined	DEF	AT	3

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1212

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: VR 408 Date of Summary: 08-MAR-2000 First Sample Examined: 0

Lease Number: G15212 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Borehole MD: 8000

Well Name: A001 Paleo Done By: OPERATOR Borehole TVD: 8000

API Well Number: 177064084400 Drilling Operator: HOUSTON EXPLORATION COMPANY Rkb Elevation: 89

Paleo Report Num:1 of 1Sample Range:0 - 0Water Depth:388

Remark: In=sand

Public Info Code: Y 24-JAN-2010

MD / TVDPaleo Top DescriptionEcozone1819 / 1819DEF IN Middle Pleistocene (Ionian) Trimosina "A"DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"DEF AT Lower Pleistocene (Calabrian) Hyalinea "B" = Trimosina "B"

**Ecozone Eq MMS:** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1213

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 28	Date of Summary: 16-FEB-2000	First Sample Examined:	0
Lease Number: G16104	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11114
Well Name: 001	Paleo Done By: OPERATOR	Borehole TVD:	11111
<b>API Well Number:</b> 177004104300	Drilling Operator: VASTAR RESOURCES INC.	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	26
Public Info Code: Y 03-FEB-2010	Ecozone Ea MMS:	Paleo ID:	001

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7220 / 7220	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
9550 / 9549	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT
10750 / 10748	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1214

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 28 Date of Summary: 12-JUL-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16104 **Borehole MD:** 14993 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 14976 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177004104801 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 26 Water Depth: Public Info Code: Y 11-JUN-2010 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7500 / 7500	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
8050 / 8049	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT
9700 / 9696	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT
10700 / 10690	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT
10950 / 10940	DEF	AT Lower Miocene (Aquitanian) Planulina palmerae	DEF	AT
13480 / 13470	DEF	AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1215

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 28	Date of Summary: 07-MAY-2001	First Sample Examined:	0
Lease Number: G16104	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11700
Well Name: 003	Paleo Done By: OPERATOR	Borehole TVD:	11697
API Well Number: 177004106100	Drilling Operator: VASTAR RESOURCES INC.	Rkb Elevation:	112
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	28
Public Info Code: Y 03-AUG-2010	Ecozone Ea MMS:	Paleo ID:	001

### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7420 / 7418	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT
9940 / 9937	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT
11040 / 11037	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT
11280 / 11277	DEF	AT Lower Miocene (Aquitanian) Planulina palmerae	DEF	AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1216

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 34	Date of Summary: 11-MAR-1998	First Sample Examined:	0
Lease Number: G03251	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	8866
Well Name: D010	Paleo Done By: OPERATOR	Borehole TVD:	8428
API Well Number: 177004098500	Drilling Operator: VASTAR RESOURCES INC.	Rkb Elevation:	116
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	32
Public Info Code: Y 05-MAR-2008	Ecozone Ea MMS:	Paleo ID:	001

<u> </u>		Paleo Top Description		<u>Ecozone</u>
6805 / 6655	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF A	ιT
7635 / 7376	DEF	AT deepwater facies Harang	DEF A	ιT
8527 / 8141	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF A	·Τ

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1217

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 39	Date of Summary: 15-JAN-1999	First Sample Examined:	0
Lease Number: G13825	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10976
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	10538
API Well Number: 177004100401	Drilling Operator: MARINER GULF OF MEXICO LLC	Rkb Elevation:	95
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	32
Public Info Code: Y 11-SEP-2008	Ecozone Eq MMS:	Paleo ID:	001

MD / TVD		Paleo Top Description		<u>Ecozone</u>
7350 / 7349	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF A	T
9040 / 8961	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF A	Т

GEOLOGIC

02-FEB-2011 PAGE: 1218

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 39 Date of Summary: 18-JAN-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G13825 **Borehole MD:** 12034 Well Name: B002 Paleo Done By: OPERATOR **Borehole TVD:** 10269 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 177004102800 **Rkb Elevation:** 82 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 31 Water Depth: Public Info Code: Y 23-JUN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u> </u>		Paleo Top Description		<u>Ecozone</u>
7462 / 6477	DEF	IN Middle Miocene (Serravallian) Cibicides opima	DEF A	.Т
8100 / 6998	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF A	.Т
10500 / 8969	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF A	.T

GEOLOGIC 02-FEB-2011 PAGE: 1219

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 40 Date of Summary: 23-JUL-2004 First Sample Examined: 4456 Lease Number: G24704 Source of Paleo: OPERATOR 16507 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16500 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC API Well Number:** 177004119600 **Rkb Elevation:** 96 **Sample Range:** 4456 - 16507 Paleo Report Num: 1 of 2 32 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 30-JUN-2008 Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco:	zone
4456 / 4456	DEF	AT first sample examined	DEF	AT	2
6120 / 6119	POS	IN Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	2
6900 / 6899	POS	IN Upper Miocene (Tortonian) Discorbis 12	DEF	AT	2
7050 / 7049	POS	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT	2
9210 / 9208	DEF	AT Lower Miocene (Burdigalian) Cristellaria "A"	DEF	AT	2
11100 / 11097	DEF	IN Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	3
14280 / 14275	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT	3
14490 / 14485	DEF	AT faunal change (no faunal increase)	DEF	AT	4
15000 / 14994	POS	AT Lower Miocene (Aquitanian) Cristellaria "R"	DEF	AT	3
15660 / 15654	DEF	AT Upper Oligocene (Chattian) Robulus "A"	DEF	AT	3
16507 / 16500	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC

02-FEB-2011 PAGE: 1220

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 40 First Sample Examined: 11010 Date of Summary: 16-AUG-2004 Lease Number: G24704 Source of Paleo: OPERATOR 16507 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 16500 **Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC API Well Number:** 177004119600 **Rkb Elevation:** 96 Paleo Report Num: 2 of 2 **Sample Range:** 11010 - 16507 32 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11010 / 11007	DEF	AT first sample examined	DEF	AT
11220 / 11217	POS	AT Middle Miocene (Langhian) Discoaster calculosus	DEF	AT
11640 / 11637	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
14609 / 14604	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT
14610 / 14605	POS	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
16507 / 16500	DEF	AT last sample examined	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1221

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 43 Date of Summary: 04-SEP-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16107 **Borehole MD:** 12765 Well Name: 002 Paleo Done By: OPERATOR **Borehole TVD:** 12301 **Drilling Operator:** OSPREY PETROLEUM COMPANY INC **API Well Number:** 177004110100 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 30 Water Depth:

Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Paleo ID: 001

<u> </u>	Paleo Top Description	<u>Ecozone</u>
9915 / 9803	DEF AT Lower Miocene (Aquitanian) Siphonina davisi	DEF AT
11400 / 11102	DEF AT Lower Miocene (Aquitanian) Planulina palmerae	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1222

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	WC 43	Date of Summary: 03-MAR-2005	First Sample Examined:	15400
Lease Number:	G16107	Source of Paleo: OPERATOR	Borehole MD:	18800
Well Name:	003	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	18790
API Well Number:	177004120900	Drilling Operator: HELIS OIL & GAS COMPANY LLC	Rkb Elevation:	96
Paleo Report Num:	1 of 1	Sample Range: 15400 - 18800	Water Depth:	31
Public Info Code:	Y 20-JUL-2010	Ecozone Eg MMS: Y	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
15400 / 15394	DEF AT first sample examined	DEF AT 4
16160 / 16153	POS IN Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF AT 4
18800 / 18790	DEF AT last sample examined	DEF AT 4

GEOLOGIC 02-FEB-2011

PAGE: 1223

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 43 Date of Summary: 24-AUG-2005 First Sample Examined: 8010 Lease Number: G16107 Source of Paleo: OPERATOR **Borehole MD:** 18500 Well Name: 004 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18484 Drilling Operator: HELIS OIL & GAS COMPANY LLC **API Well Number:** 177004122700 **Rkb Elevation:** 86 Paleo Report Num: 1 of 1 **Sample Range:** 8010 - 18500 31 Water Depth: Public Info Code: Y 20-JUL-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	ozone
8010 / 8010	DEF	AT first sample examined	DEF	AT	1
8580 / 8580	DEF	AT	DEF	AT	2
8700 / 8700	DEF	AT Lower Miocene (Burdigalian) Discorbis bolivarensis	DEF	AT	2
9390 / 9390	DEF	AT local marker benthic foram increase	DEF	AT	3
9690 / 9689	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT	3
10860 / 10859	POS	AT Lower Miocene (Aquitanian) Planulina palmerae	DEF	AT	3
11010 / 11009	DEF	AT Lower Miocene (Aquitanian) Globigerinoides primordius	DEF	AT	3
11250 / 11249	DEF	AT Lower Miocene (Aquitanian) Lenticulina hanseni	DEF	AT	3
12120 / 12119	DEF	AT sample gap top	POS	AT	3
12300 / 12299	DEF	AT sample gap bottom	DEF	AT	3
14910 / 14907	DEF	AT Eggerella sp. (local marker)	DEF	AT	4
15330 / 15327	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	AT	4
15480 / 15477	DEF	AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF	AT	4
15570 / 15567	DEF	AT Arenaceous fauna (local marker)	DEF	AT	3
15870 / 15867	DEF	AT Upper Oligocene (Chattian) Robulus "A"	DEF	AT	3
17670 / 17660	DEF	AT poor sample interval top	DEF	AT	3
18499 / 18484	DEF	AT poor sample interval bottom	DEF	AT	3
18500 / 18485	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1224

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 46 Date of Summary: 16-SEP-2002 First Sample Examined: 4000 Lease Number: G21533 Source of Paleo: OPERATOR **Borehole MD:** 18700 Paleo Done By: PALEO-DATA, INC. Well Name: A001 **Borehole TVD:** 18687 Drilling Operator: EL PASO PRODUCTION GOM INC **API Well Number:** 177004113600 **Rkb Elevation:** 98 Paleo Report Num: 1 of 1 **Sample Range:** 4000 - 18700 32 Water Depth: Public Info Code: Y 18-NOV-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4000 / 4000	DEF	AT first sample examined	DEF	ΑT	1
6040 / 6040	DEF	AT	DEF	ΑT	2
8590 / 8590	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	ΑT	2
9160 / 9160	DEF	AT	DEF	ΑT	3
9430 / 9430	DEF	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	ΑT	3
9910 / 9910	DEF	AT Lower Miocene (Aquitanian) Lenticulina hanseni	DEF	ΑT	3
12370 / 12370	DEF	AT sample gap top	POS	ΑT	3
12730 / 12730	DEF	AT sample gap bottom	DEF	ΑT	3
13540 / 13540	POS	AT Lower Miocene (Aquitanian) Lenticulina jeffersonensis	DEF	ΑT	3
18270 / 18265	DEF	AT Upper Oligocene (Chattian) Robulus "A"	DEF	ΑT	3
18390 / 18383	DEF	AT	DEF	ΑT	4
18700 / 18687	DEF	AT last sample examined	DEF	ΑT	4

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1225

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 48 Date of Summary: 08-SEP-2000 First Sample Examined: 0

Lease Number:G01438Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:15497Well Name:H001Paleo Done By:OPERATORBorehole TVD:13572

API Well Number: 177004106300 Drilling Operator: CHEVRON USA INC Rkb Elevation: 83

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 25

Public Info Code: Y 19-AUG-2010 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

8900 / 8895 DEF AT Lower Miocene (Aquitanian) Siphonina davisi DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1226

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 61 Date of Summary: 19-JAN-1999 First Sample Examined: 15010 Lease Number: G09386 Source of Paleo: OPERATOR **Borehole MD:** 18818 Well Name: B003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14770 **Drilling Operator:** BHP BILLITON PETROLEUM (AMERICAS) INC **API Well Number:** 177004101400 **Rkb Elevation:** 123 Paleo Report Num: 1 of 2 **Sample Range:** 15010 - 20050 36 Water Depth: Public Info Code: Y 03-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15010 / 11959	DEF	AT first sample examined	DEF	AT
15790 / 12472	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT
16810 / 13099	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
20051 /	DEF	AT last sample examined	DEF	AT

GEOLOGIC

PAGE: 1227

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 61 Date of Summary: 20-JAN-1999 First Sample Examined: 14020 Lease Number: G09386 Source of Paleo: OPERATOR **Borehole MD:** 18818 Well Name: B003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14770 Drilling Operator: BHP BILLITON PETROLEUM (AMERICAS) INC **API Well Number:** 177004101400 **Rkb Elevation:** 123 Paleo Report Num: 2 of 2 **Sample Range:** 14020 - 20050 36 Water Depth: Public Info Code: Y 03-JAN-2009 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>	
14020 / 11294	DEF AT first sample examined	DEF AT 2	
15580 / 12344	DEF AT Lower Miocene (Burdigalian) Robulus chambersi	DEF AT 3	
15760 / 12454	DEF AT	DEF AT 4	
15820 / 12489	DEF AT local marker benthic foram increase	DEF AT 4	
16000 / 12595	DEF IN Lower Miocene (Burdigalian) Globigerina binaensis	DEF AT 4	
16300 / 12775	DEF AT	DEF AT 3	
20050 /	DEF AT last sample examined	DEF AT 3	

GEOLOGIC

PAGE: 1228

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 61 Date of Summary: 09-FEB-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G09386 **Borehole MD:** 20050 Well Name: B003 Paleo Done By: OPERATOR **Borehole TVD:** 15990 **Drilling Operator:** BHP BILLITON PETROLEUM (AMERICAS) INC **API Well Number:** 177004101401 **Rkb Elevation:** 119 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 38 Water Depth: Public Info Code: Y 01-FEB-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD / TVD		Paleo Top Description		<b>Ecozone</b>
15580 / 12344	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT
15790 / 12472	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT
15820 / 12490	DEF	AT local marker (general)	DEF	AT
16000 / 12596	DEF	IN Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT
16810 / 13099	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
17858 / 13895	DEF	IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1229

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 63 Date of Summary: 17-JAN-2005 First Sample Examined: 5350 Lease Number: G24705 Source of Paleo: OPERATOR **Borehole MD:** 17133 17132 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD: Drilling Operator:** CHEVRON TEXACO CORP. **API Well Number:** 177004121300 **Rkb Elevation:** 83 Paleo Report Num: 1 of 1 **Sample Range:** 5350 - 17133 35 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD	_	Paleo Top Description		<u>E</u>	cozone
5350 / 5350	DEF	AT first sample examined	DEF	IN	1
5351 / 5351	DEF	IN Upper (Late) Miocene	DEF	IN	1
5439 / 5439	DEF	AT Upper Miocene (Tortonian) Eponides mansfieldi	DEF	IN	1
5440 / 5440	DEF	AT Upper Miocene (Tortonian) Bigenerina "B"	DEF	IN	1
5500 / 5500	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	IN	1
5680 / 5680	DEF	AT miliolid limestone	DEF	AT	2
5740 / 5740	DEF	AT Upper Miocene (Tortonian) Cibicides inflata	DEF	AT	2
5769 / 5769	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	2
5770 / 5770	DEF	AT Upper Miocene (Tortonian) Bigenerina 2	DEF	ΑT	2
5860 / 5860	DEF	AT	DEF	IN	1
5890 / 5890	DEF	AT local marker foram decrease	DEF	IN	1
6010 / 6010	DEF	AT local marker benthic foram increase	DEF	ΑT	2
6040 / 6040	DEF	AT Upper Miocene (Tortonian) Uvigerina 3	DEF	ΑT	2
6370 / 6370	DEF	AT Middle Miocene (Serravallian) Robulus 5 / 55	DEF	ΑT	2
6460 / 6460	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	ΑT	2
6490 / 6490	DEF	AT local marker foram decrease	DEF	ΑT	2
6610 / 6610	DEF	AT local marker benthic foram increase	DEF	ΑT	2
6700 / 6700	DEF	AT local marker foram decrease	DEF	ΑT	2
6820 / 6820	DEF	AT local marker planktic foram increase	DEF	ΑT	2
6880 / 6880	DEF	AT local marker foram decrease	DEF	ΑT	2
6970 / 6970	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	2
7000 / 7000	DEF	AT local marker foram decrease	DEF	ΑT	2

GEOLOGIC

PAGE: 1230

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 63

Date of Summary: 17-JAN-2005

First Sample Examined: 5350

Lease Number: G24705

Source of Paleo: OPERATOR

Borehole TVD: 17133

 Well Name:
 001
 Paleo Done By:
 BANE AND SCHUNICK
 Borehole TVD:
 17132

 API Well Number:
 177004121300
 Drilling Operator:
 CHEVRON TEXACO CORP.
 Rkb Elevation:
 83

 Paleo Report Num:
 1 of 1
 Sample Range:
 5350 - 17133
 Water Depth:
 35

 Paleo Report Num:
 1 of 1
 Sample Range:
 5350 - 17133
 Water Depth:
 35

 Public Info Code:
 Y 30-JUN-2008
 Ecozone Eq MMS:
 Y
 Paleo ID:
 001

MD / TVD		Paleo Top Description		Ec	ozone
7300 / 7300	DEF	AT	DEF	IN	1
7960 / 7960	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT	2
7990 / 7990	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	2
8050 / 8050	DEF	AT miliolid limestone	DEF	AT	2
8110 / 8110	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	2
8170 / 8170	DEF	AT local marker benthic foram increase	DEF	IN	2
8200 / 8200	DEF	AT local marker foram decrease	DEF	AT	2
8470 / 8470	POS	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	2
8500 / 8500	DEF	AT local marker benthic foram increase	DEF	AT	2
8530 / 8530	DEF	AT local marker foram decrease	DEF	AT	2
8560 / 8560	DEF	AT local marker benthic foram increase	DEF	AT	2
8770 / 8770	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	2
8890 / 8890	DEF	AT local marker foram decrease	DEF	IN	1
9520 / 9520	DEF	AT local marker benthic foram increase	DEF	IN	1
9640 / 9639	DEF	AT Lower Miocene (Burdigalian) Camerina 1	DEF	IN	1
9850 / 9849	POS	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	IN	1
10210 / 10209	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	IN	1
10290 / 10289	DEF	AT local marker foram decrease	DEF	AT	2
10410 / 10409	DEF	IN Lower Miocene (Burdigalian) Cristellaria "A"	DEF	IN	2
10500 / 10499	DEF	AT	DEF	AT	2
10620 / 10619	DEF	AT local marker foram increase	DEF	IN	2
10710 / 10709	DEF	AT local marker foram increase	DEF	IN	2
10740 / 10739	DEF	AT local marker foram decrease	DEF	AT	2
10920 / 10919	DEF	AT local marker benthic foram increase	DEF	IN	2

GEOLOGIC 02-FEB-2011 PAGE: 1231

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:WC63Date of Summary:17-JAN-2005First Sample Examined:5350Lease Number:G24705Source of Paleo:OPERATORBorehole MD:17133Well Name:001Paleo Done By:BANE AND SCHUNICKBorehole TVD:17132

Well Name:001Paleo Done By:BANE AND SCHUNICKBorehole TVD:17132API Well Number:177004121300Drilling Operator:CHEVRON TEXACO CORP.Rkb Elevation:83Paleo Report Num:1 of 1Sample Range:5350 - 17133Water Depth:35

 Paleo Report Num:
 1 of 1
 Sample Range:
 5350 - 17133
 Water Depth:
 35

 Public Info Code:
 Y 30-JUN-2008
 Ecozone Eq MMS:
 Y
 Paleo ID:
 001

MD / TVD		Paleo Top Description		<u>E</u>	cozone
11040 / 11039	DEF	AT local marker benthic foram increase	DEF	IN	2
11070 / 11069	DEF	AT Arenaceous fauna (local marker)	DEF	IN	2
11490 / 11489	DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	IN	2
11520 / 11519	DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	IN	2
11700 / 11699	DEF	AT faunal change (no faunal increase)	DEF	IN	2
11850 / 11849	DEF	AT local marker benthic foram increase	DEF	IN	2
12120 / 12119	DEF	AT local marker foram decrease	DEF	AT	2
12570 / 12569	DEF	AT	DEF	IN	1
12840 / 12839	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	2
12870 / 12869	DEF	AT local marker foram decrease	DEF	ΑT	2
13230 / 13229	POS	AT reworked material	DEF	AT	2
13350 / 13349	DEF	AT Lower Miocene (Burdigalian) Siphogenerina fredsmithi	DEF	ΑT	2
13380 / 13379	DEF	AT Lower Miocene (Burdigalian) Gyroidina 8	DEF	IN	2
13440 / 13439	DEF	AT local marker benthic foram increase	DEF	ΑT	3
13740 / 13739	DEF	AT Eggerella sp. (local marker)	DEF	ΑT	3
13830 / 13829	DEF	AT local marker foram decrease	DEF	AT	3
13860 / 13859	DEF	AT local marker benthic foram increase	DEF	AT	3
13920 / 13919	DEF	AT Arenaceous fauna (local marker)	DEF	IN	2
14010 / 14009	DEF	AT local marker foram decrease	DEF	IN	2
14460 / 14459	POS	AT local marker benthic foram increase	DEF	AT	2
14610 / 14609	DEF	AT local marker benthic foram increase	DEF	IN	2
14700 / 14699	DEF	AT local marker foram decrease	DEF	AT	2
15030 / 15029	DEF	AT local marker benthic foram increase	DEF	ΑT	2
15150 / 15149	DEF	AT local marker foram decrease	DEF	ΑT	2

GEOLOGIC

Paleo ID:

PAGE: 1232

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 63 Date of Summary: 17-JAN-2005 First Sample Examined: 5350 Lease Number: G24705 Source of Paleo: OPERATOR **Borehole MD:** 17133 17132 Well Name: 001 Paleo Done By: BANE AND SCHUNICK **Borehole TVD:** Drilling Operator: CHEVRON TEXACO CORP. **API Well Number: 177004121300 Rkb Elevation:** 83 Paleo Report Num: 1 of 1 **Sample Range:** 5350 - 17133 35 Water Depth:

Public Info Code: Y 30-JUN-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<b>Ecozone</b>
16020 / 16019	DEF	AT Arenaceous fauna (local marker)	DEF IN	٧ 2
16260 / 16259	DEF	AT local marker foram decrease	DEF IN	٧ 2
16410 / 16409	POS	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF A	T 2
16470 / 16469	DEF	AT	DEF A	T 2
16590 / 16589	DEF	AT local marker planktic foram increase	DEF IN	٧ 2
16680 / 16679	DEF	AT local marker foram decrease	DEF A	T 2
17133 / 17131	DEF	AT last sample examined	DEF A	T 2

GEOLOGIC

02-FEB-2011 PAGE: 1233

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 66 Date of Summary: 30-JAN-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G02819 **Borehole MD:** 9411 Well Name: C005 Paleo Done By: OPERATOR **Borehole TVD:** 8395 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177004098300 **Rkb Elevation:** 116 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 32 Water Depth: Public Info Code: Y 23-JAN-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

<u> </u>	Paleo Top Desc	<u>ription</u>		<u>Ecozone</u>
7205 / 6503	DEF IN Middle Miocene	(Serravallian) Cristellaria "I"	DEF	AT
8013 / 7185	DEF AT Middle Miocene	(Serravallian) Praeorbulina glomerosa	DEF	AT
8906 / 7954	DEF IN Middle Miocene	(Langhian) Amphistegina "B"	DEF	AT

GEOLOGIC

02-FEB-2011 PAGE: 1234

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 66 Date of Summary: 01-JUL-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G02826 **Borehole MD:** 10850 Well Name: A017 Paleo Done By: OPERATOR **Borehole TVD:** 8410 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177004100600 **Rkb Elevation:** 117 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 36 Public Info Code: Y 27-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
8552 / 6761	DEF IN Middle Miocene (Serravallian) Cristellaria "I"	DEF AT
9540 / 7460	DEF IN Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF AT
10596 / 8224	DEF IN Middle Miocene (Langhian) Amphistegina "B"	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1235

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 98 Date of Summary: 01-SEP-2005 4963 First Sample Examined: Lease Number: G12757 Source of Paleo: OPERATOR 17560 **Borehole MD:** Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** 16517 Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number:** 177004123100 **Rkb Elevation:** 112 Paleo Report Num: 1 of 1 **Sample Range:** 4963 - 17560 Water Depth: 41 Public Info Code: Y 01-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Paleo done by Rashel N Rosen, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
4963 / 4963	DEF	AT first sample examined	DEF	AT	0
5040 / 5040	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	0
5310 / 5309	POS	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	0
6030 / 6002	DEF	AT	DEF	AT	1
6390 / 6334	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	IN	1
6540 / 6472	DEF	AT	DEF	IN	2
7770 / 7594	DEF	AT	DEF	AT	1
7830 / 7649	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT	1
8130 / 7923	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	2
8310 / 8088	DEF	AT	DEF	AT	1
8490 / 8252	DEF	AT	DEF	AT	2
8760 / 8497	DEF	AT	DEF	AT	1
9720 / 9377	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	IN	1
10500 / 10119	DEF	AT	DEF	AT	2
11550 / 11123	POS	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT	2
11640 / 11208	DEF	AT local marker benthic foram increase	DEF	AT	2
11910 / 11464	DEF	AT	DEF	IN	2
12960 / 12460	DEF	AT	DEF	AT	1
13080 / 12572	DEF	AT	DEF	AT	2
13440 / 12901	DEF	AT pyrite	DEF	AT	2
14040 / 13409	DEF	AT foram flood	DEF	AT	3
15180 / 14376	DEF	AT	DEF	AT	2

GEOLOGIC

PAGE: 1236

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 98 Date of Summary: 01-SEP-2005 First Sample Examined: 4963 Source of Paleo: OPERATOR Lease Number: G12757 **Borehole MD:** 17560 16517 Well Name: 003 Paleo Done By: OPERATOR **Borehole TVD:** Drilling Operator: MARINER GULF OF MEXICO LLC **API Well Number: 177004123100 Rkb Elevation:** 112 Paleo Report Num: 1 of 1 **Sample Range:** 4963 - 17560 41 Water Depth: Public Info Code: Y 01-MAR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		Ecozo	<u>one</u>
15270 / 14455	DEF	AT	DEF II	N	2
16020 / 15116	POS	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF II	N	2
17189 / 16155	DEF	AT local marker planktic foram increase	DEF A	·Τ	3
17190 / 16156	DEF	IN Lower Miocene (Aquitanian) Siphonina davisi	DEF A	·Τ	3
17460 / 16419	DEF	AT	DEF A	·Τ	2
17560 / 16517	DEF	AT last sample examined	DEF A	·Τ	2

GEOLOGIC 02-FEB-2011

PAGE: 1237

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 102 Date of Summary: 06-OCT-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: 00247 **Borehole MD:** 13774 Well Name: H001 Paleo Done By: OPERATOR **Borehole TVD:** 12566 Drilling Operator: VASTAR RESOURCES INC. **API Well Number:** 177004103400 **Rkb Elevation:** 96 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 40 Water Depth: Public Info Code: Y 24-AUG-2009 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
7830 / 7264	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT
8770 / 8071	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT
9615 / 8812	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT
10420 / 9531	DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT
12100 / 11039	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1238

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 129 Date of Summary: 26-APR-2004 First Sample Examined: 7980 Lease Number: G24711 Source of Paleo: OPERATOR 18103 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18100 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 177004118500 **Rkb Elevation:** 86 **Sample Range:** 7980 - 18090 Paleo Report Num: 1 of 2 39 Water Depth: Public Info Code: Y 30-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		Eco	zone
7980 / 7980 DEF	AT first sample examined	DEF	AT	2
8040 / 8040 DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	2
8280 / 8280 POS	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT	2
8430 / 8430 DEF	AT	DEF	AT	3
8820 / 8820 POS	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT	3
8970 / 8970 DEF	AT	DEF	AT	2
9810 / 9810 DEF	AT Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	2
12240 / 12240 DEF	AT	DEF	AT	3
12450 / 12449 DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT	3
13920 / 13919 DEF	AT Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT	3
13980 / 13979 DEF	AT	DEF	AT	4
14550 / 14549 DEF	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	4
14579 / 14578 DEF	AT pyrite	DEF	AT	4
14580 / 14579 DEF	AT Lower Miocene (Burdigalian) Siphogenerina fredsmithi	DEF	AT	4
15450 / 15448 DEF	AT local marker foram increase	DEF	AT	4
15510 / 15508 DEF	AT local marker foram decrease	DEF	AT	4
16410 / 16407 POS	AT Lower Miocene (Aquitanian) Siphonina davisi	DEF	AT	4
16470 / 16467 DEF	AT local marker benthic foram increase	DEF	AT	4
16620 / 16617 DEF	AT	DEF	AT	3
18090 / 18087 DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1239

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 129 Date of Summary: 27-APR-2004 7980 First Sample Examined: Lease Number: G24711 Source of Paleo: OPERATOR 18103 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 18100 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 177004118500 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 7980 - 18090 39 Water Depth: Public Info Code: Y 30-APR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
7980 / 7980	DEF AT first sample examined	DEF AT
7981 / 7981	DEF IN Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF AT
8280 / 8280	POS AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF AT
11700 / 11700	DEF AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF AT
13860 / 13859	DEF IN Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF AT
15360 / 15359	POS AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF AT
18090 / 18087	DEF AT last sample examined	DEF AT

GEOLOGIC

02-FEB-2011 PAGE: 1240

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 129	Date of Summary: 26-APR-2004	First Sample Examined:	14010
Lease Number: G24711	Source of Paleo: OPERATOR	Borehole MD:	17902
Well Name: 001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	17100
API Well Number: 177004118501	Drilling Operator: DOMINION EXPLORATION & PRODUCTION INC	Rkb Elevation:	86
Paleo Report Num: 1 of 2	Sample Range: 14010 - 17902	Water Depth:	39
Public Info Code: Y 30-APR-2008	Ecozone Eq MMS: Y	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	ozone
14010 / 14009	DEF	AT first sample examined	DEF	AT	4
14011 / 14010	DEF	IN Lower Miocene (Burdigalian) Marginulina ascensionensis / "A"	DEF	AT	4
16470 / 16093	DEF	AT faunal change (no faunal increase)	DEF	AT	3
17902 / 17100	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC

02-FEB-2011 PAGE: 1241

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 129 Date of Summary: 27-APR-2004 14010 First Sample Examined: Lease Number: G24711 Source of Paleo: OPERATOR 17902 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 17100 **Drilling Operator:** DOMINION EXPLORATION & PRODUCTION INC **API Well Number:** 177004118501 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 14010 - 17902 39 Water Depth: Public Info Code: Y 30-APR-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

<u> MD / TVD</u>	Paleo Top Description	<u>Ecozone</u>
14010 / 14009	DEF AT first sample examined	DEF AT
15420 / 15326	POS AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF AT
17902 / 17100	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1242

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 170	Date of Summary: 03-AUG-2000	First Sample Examined:	14640
Lease Number: G04085	Source of Paleo: OPERATOR	Borehole MD:	17125
Well Name: A006	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	16083
API Well Number: 177004104702	Drilling Operator: NEXEN PETROLEUM OFFSHORE USA INC	Rkb Elevation:	106
Paleo Report Num: 1 of 1	Sample Range: 14640 - 17125	Water Depth:	38
Public Info Code: Y 10-AUG-2010	Ecozone Ea MMS: Y	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<u>F</u>	<u>Ecozone</u>
14640 / 14185	DEF	AT first sample examined	DEF	AT	3
14641 / 14186	DEF	IN Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	3
16200 / 15392	DEF	AT sample gap top	DEF	AT	3
16560 / 15660	DEF	AT sample gap bottom	DEF	AT	3
17125 / 16083	DEF	AT last sample examined	DEF	ΑT	3

GEOLOGIC 02-FEB-2011 PAGE: 1243

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 170 Date of Summary: 27-AUG-1998 First Sample Examined: 9500 Lease Number: G04085 Source of Paleo: OPERATOR **Borehole MD:** 14549 Well Name: B001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14271 Drilling Operator: NEXEN PETROLEUM OFFSHORE USA INC **API Well Number: 177004098000 Rkb Elevation:** 95 Paleo Report Num: 1 of 1 **Sample Range:** 9500 - 14549 34 Water Depth: Public Info Code: Y 26-FEB-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Ecozone	<u> </u>
9500 / 9499	DEF	AT first sample examined	DEF	AT 3	
9501 / 9500	DEF	IN Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT 3	
10200 / 10199	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT 3	
11844 / 11843	DEF	AT sample gap top	POS	AT 3	
12000 / 11999	DEF	AT sample gap bottom	DEF	AT 3	
12470 / 12467	DEF	IN Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT 3	
12680 / 12672	DEF	AT Middle Miocene (Langhian) Amphistegina "B"	DEF	AT 3	
12830 / 12816	DEF	AT Middle Miocene (Langhian) Robulus "L" / 43	DEF	AT 3	
14549 / 14276	DEF	AT last sample examined	DEF	AT 3	

GEOLOGIC 02-FEB-2011

PAGE: 1244

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 170	Date of Summary: 27-AUG-1998	First Sample Examined:	13350
Lease Number: G04085	Source of Paleo: OPERATOR	Borehole MD:	15813
Well Name: B001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	15320
API Well Number: 177004098002	Drilling Operator: NEXEN PETROLEUM OFFSHORE USA INC	Rkb Elevation:	95
Paleo Report Num: 1 of 1	Sample Range: 13350 - 15810	Water Depth:	34
Public Info Code: Y 24-MAY-2008	Fcozone Fa MMS: Y	Paleo ID:	002

#### Remark:

MD / TVD	Paleo Top Description	Ecozone	<u> </u>
13350 / 13291	DEF AT first sample examined	DEF AT 3	
14585 / 14305	POS AT Lower Miocene (Burdigalian) Robulus 54B	DEF AT 3	
15810 / 15439	DEF AT last sample examined	DEF AT 3	

GEOLOGIC 02-FEB-2011

PAGE: 1245

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 170 Date of Summary: 02-OCT-2000 First Sample Examined: 14390 Lease Number: G04085 Source of Paleo: OPERATOR **Borehole MD:** 15880 Well Name: C001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 15600 Drilling Operator: NEXEN PETROLEUM OFFSHORE USA INC **API Well Number:** 177004106200 **Rkb Elevation:** 113 Paleo Report Num: 1 of 1 **Sample Range:** 14390 - 15850 33 Water Depth: Public Info Code: Y 01-OCT-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		<u>E</u>	cozone
14390 / 14368	DEF	AT first sample examined	DEF	AT	3
14391 / 14369	DEF	IN Lower Miocene (Burdigalian) Robulus 54B	DEF	AT	3
15400 / 15218	DEF	AT sample gap top	POS	AT	3
15670 / 15433	DEF	AT sample gap bottom	DEF	AT	3
15850 / 15576	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011

PAGE: 1246

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 172	Date of Summary: 24-FEB-1998	First Sample Examined:	0
Lease Number: G01998	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9050
Well Name: 016	Paleo Done By: OPERATOR	Borehole TVD:	7554
API Well Number: 177004098400	Drilling Operator: IP PETROLEUM COMPANY INC	Rkb Elevation:	102
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	49
Public Info Code: Y 28-FFB-2008	Ecozone Eg MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6990 / 5983	DEF AT Upper Miocene (Tortonian) Cristellaria "K"	DEF AT
7330 / 6241	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT
8290 / 6969	DEF AT Upper Miocene (Tortonian) Textularia "L"	DEF AT
8705 / 7287	DEF AT Middle Miocene (Serravallian) Textularia "W"	DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1247

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 172	Date of Summary: 16-MAR-1999	First Sample Examined:	0
Lease Number: G01998	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	10493
Well Name: E001	Paleo Done By: OPERATOR	Borehole TVD:	10471
API Well Number: 177004101600	Drilling Operator: IP PETROLEUM COMPANY INC	Rkb Elevation:	100
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	49
Public Info Code: Y 05-FEB-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
6030 / 6030	DEF	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT
6280 / 6280	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT
6895 / 6894	DEF	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT
7350 / 7345	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT
8585 / 8565	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT
9500 / 9479	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1248

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 248 Date of Summary: 09-MAR-2000

First Sample Examined: 0

Lease Number: G09408

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

6392 **Borehole MD:** 

Well Name: 004 **API Well Number:** 177004104500 Paleo Done By: OPERATOR

**Borehole TVD:** 5840

**Drilling Operator:** J M HUBER CORPORATION

**Rkb Elevation:** 81

Paleo Report Num: 1 of 1

0 - 0

Water Depth:

Public Info Code: Y 23-FEB-2010

Sample Range: **Ecozone Eq MMS:** 

Paleo ID: 001

Remark:

MD / TVD

**Paleo Top Description** 

**Ecozone** 

77

6240 / 5737

DEF AT Upper Miocene (Tortonian) Robulus "E"

DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1249

0

11010

5954

127

80

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 248 Date of Summary: 18-APR-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A004 Paleo Done By: OPERATOR

API Well Number: 177004077502 Drilling Operator: J M HUBER CORPORATION

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 13-MAY-2010 Ecozone Eq MMS:

Remark:

Lease Number: G09408

MD / TVD Paleo Top Description Ecozone

10554 / 5743 DEF AT Lower Pliocene (Zanclian) Buliminella 1 DEF AT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1250

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 248 Date of Summary: 12-MAY-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A011 Paleo Done By: OPERATOR

API Well Number: 177004105400 Drilling Operator: J M HUBER CORPORATION

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 02-MAY-2010 Ecozone Eq MMS:

First Sample Examined: 0
Borehole MD: 9161
Borehole TVD: 6020

Rkb Elevation: 115
Water Depth: 80

Paleo ID: 001

Remark:

Lease Number: G09408

MD / TVD Paleo Top Description

<u>Ecozone</u>

8735 / 5767

DEF AT Lower Pliocene (Zanclian) Buliminella 1

DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1251

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 289 Date of Summary: 23-JUL-2008 First Sample Examined: 12900 Lease Number: G22539 Source of Paleo: OPERATOR **Borehole MD:** 14250 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14249 **Drilling Operator: HUNT OIL COMPANY API Well Number: 177014040500 Rkb Elevation:** 101 Paleo Report Num: 1 of 1 **Sample Range:** 12900 - 14250 Water Depth: 46 Public Info Code: Y 23-NOV-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description		<b>Ecozone</b>
12900 / 12899	DEF AT first sample examined	DEF AT	3
12901 / 12900	DEF IN Lower Miocene (Burdigalian) Robulus 54B	DEF AT	3
13470 / 13469	POS AT sequence boundary	DEF AT	3
13680 / 13679	POS AT maximum flooding surface	POS AT	4
14250 / 14249	DEF AT last sample examined	POS AT	4

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1252

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 300	Date of Summary: 17-MAR-2000	First Sample Examined:	0
Lease Number: G15078	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	11520
Well Name: 002	Paleo Done By: OPERATOR	Borehole TVD:	10885
API Well Number: 177014031100	Drilling Operator: CHIEFTAIN INTERNATIONAL US INC	Rkb Elevation:	79
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	48
Public Info Code: Y 22-MAR-2010	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD/TVD		Paleo Top Description		<b>Ecozone</b>
8204 / 8199	DEF	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF A	ΑT
9625 / 9503	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF A	ΑT
10822 / 10390	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF A	ΑT

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1253

0

9525

9028

127

48

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 300 Date of Summary: 06-MAR-2000

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR

API Well Number: 177014031000 Drilling Operator: CHIEFTAIN INTERNATIONAL US INC Rkb Elevation:

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 08-FEB-2010 Ecozone Eq MMS:

Remark: In=sand

Lease Number: G15078

MD / TVD Paleo Top Description Ecozone

9061 / 8674 DEF IN Upper Miocene (Tortonian) Cibicides carstensi DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1254

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 328 Date of Summary: 09-FEB-2004 First Sample Examined: 6420 Lease Number: G22542 Source of Paleo: OPERATOR **Borehole MD:** 14900 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 14452 Drilling Operator: REMINGTON OIL AND GAS CORPORATION **API Well Number:** 177014035500 **Rkb Elevation:** 101 Paleo Report Num: 1 of 1 **Sample Range:** 6420 - 14910 Water Depth: 68 Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
6420 / 6420	DEF	AT first sample examined	DEF	AT	3
6480 / 6480	DEF	IN Upper Miocene (Tortonian) Robulus "E"	DEF	AT	3
6570 / 6570	POS	AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF	AT	3
6780 / 6780	POS	AT Upper Miocene (Tortonian) Cristellaria "K"	DEF	AT	3
8250 / 8250	DEF	AT Upper Miocene (Tortonian) Discorbis 12	DEF	AT	3
9180 / 9180	POS	AT Upper Miocene (Tortonian) Textularia "L"	DEF	AT	3
9300 / 9300	DEF	AT faunal change (no faunal increase)	DEF	AT	4
9630 / 9630	POS	AT Upper Miocene (Tortonian) Cibicides carstensi	DEF	AT	4
10530 / 10526	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi robusta	DEF	AT	4
10590 / 10584	DEF	AT Middle Miocene (Serravallian) Textularia "W"	DEF	AT	4
11700 / 11618	POS	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
11880 / 11779	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	4
12000 / 11886	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	4
12569 / 12393	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	4
12570 / 12394	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	4
13740 / 13430	DEF	AT Middle Miocene (Serravallian) Cibicides opima	DEF	AT	4
14310 / 13932	DEF	AT faunal change (no faunal increase)	DEF	AT	5
14730 / 14302	DEF	AT faunal change (no faunal increase)	DEF	AT	6
14910 /	DEF	AT last sample examined	DEF	AT	6

GEOLOGIC

PAGE: 1255

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 328 Date of Summary: 09-FEB-2004 First Sample Examined: 11270 Lease Number: G22542 Source of Paleo: OPERATOR **Borehole MD:** 13815 12716 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** Drilling Operator: REMINGTON OIL AND GAS CORPORATION **API Well Number:** 177014035501 **Rkb Elevation:** 101 Paleo Report Num: 1 of 1 **Sample Range:** 11270 - 13770 68 Water Depth: Public Info Code: Y 25-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	<u>ozone</u>
11270 / 11230	DEF	AT first sample examined	DEF	AT	4
11271 / 11231	DEF	IN Middle Miocene (Serravallian) Textularia "W"	DEF	AT	4
11670 / 11579	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DEF	AT	4
11820 / 11699	DEF	AT Middle Miocene (Serravallian) Bigenerina humblei	DEF	AT	4
12090 / 11896	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	4
12299 / 12031	DEF	IN Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	4
12300 / 12031	DEF	AT Middle Miocene (Serravallian) Cristellaria "I"	DEF	AT	4
13770 / 12700	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 1256

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 366 7000 Date of Summary: 16-APR-2009 First Sample Examined: Lease Number: G27025 Source of Paleo: OPERATOR 13677 **Borehole MD:** Well Name: A003 Paleo Done By: PALEO SOURCE **Borehole TVD:** 13033 **Drilling Operator: CENTURY EXPLORATION NEW ORLEANS INC API Well Number:** 177014041100 **Rkb Elevation:** 120 Paleo Report Num: 1 of 2 **Sample Range:** 7000 - 13677 78 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity spreadsheet chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	cozone
7000 / 6980	DEF	AT first sample examined	POS	IN	2
7001 / 6981	POS	IN Upper Pliocene (Gelasian) Globorotalia miocenica	POS	IN	2
7720 / 7639	DEF	AT local marker foram increase	DEF	AT	2
7930 / 7830	DEF	AT transported shelf fauna	DEF	ΑT	2
7990 / 7884	DEF	AT local marker foram increase	DEF	ΑT	2
8440 / 8294	DEF	AT local marker foram increase	DEF	ΑT	2
8800 / 8619	POS	IN Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	ΑT	2
9370 / 9134	POS	AT transported shelf fauna	DEF	ΑT	2
9669 / 9406	DEF	AT Upper Pliocene (Piacenzian) Cyclammina sp.	DEF	ΑT	3
9670 / 9407	DEF	AT Upper Pliocene (Piacenzian) Arenaceous fauna	DEF	ΑT	3
9759 / 9487	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	3
9760 / 9488	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	ΑT	3
10990 / 10600	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	ΑT	3
11290 / 10873	DEF	AT	DEF	IN	3
11770 / 11308	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	3
12100 / 11608	DEF	AT unconformity	DEF	IN	3
12159 / 11662	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	5
12160 / 11663	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	5
12250 / 11744	DEF	AT unconformity	DEF	ΑT	5
12490 / 11961	DEF	AT transported shelf fauna	DEF	ΑT	5
12520 / 11989	DEF	AT unconformity	DEF	ΑT	5
12909 / 12341	DEF	AT transported outer shelf facies	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE: 1257

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 366 Date of Summary: 16-APR-2009 First Sample Examined: 7000 Source of Paleo: OPERATOR Lease Number: G27025 **Borehole MD:** 13677 Well Name: A003 Paleo Done By: PALEO SOURCE **Borehole TVD:** 13033 **Drilling Operator:** CENTURY EXPLORATION NEW ORLEANS INC **API Well Number:** 177014041100 **Rkb Elevation:** 120 Paleo Report Num: 1 of 2 **Sample Range:** 7000 - 13677 78 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>E</u>	cozone
12910 / 12342	DEF	AT local marker foram increase	DEF	AT	5
12940 / 12369	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	5
13270 / 12667	DEF	AT unconformity	DEF	AT	5
13677 / 13033	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011 PAGE: 1258

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 366 Date of Summary: 24-JUN-2009 10000 First Sample Examined: Lease Number: G27025 Source of Paleo: OPERATOR 13677 **Borehole MD:** Well Name: A003 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13033 **Drilling Operator:** CENTURY EXPLORATION NEW ORLEANS INC **API Well Number:** 177014041100 **Rkb Elevation:** 120 Paleo Report Num: 2 of 2 **Sample Range:** 10000 - 13677 78 Water Depth: Public Info Code: Y 19-AUG-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		Eco	zone
10000 / 9706	DEF	AT first sample examined	DEF	AT	3
10390 / 10056	POS	IN Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	3
10510 / 10164	POS	AT maximum flooding surface	DEF	AT	3
10690 / 10327	POS	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	3
11170 / 10764	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	3
11890 / 11417	DEF	AT	DEF	AT	4
11920 / 11444	POS	AT maximum flooding surface	DEF	AT	4
12310 / 11799	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
12910 / 12342	POS	AT maximum flooding surface	DEF	AT	4
13240 / 12640	POS	AT maximum flooding surface	DEF	AT	4
13677 / 13033	DEF	AT last sample examined	DEF	AT	4

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1259

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 370 Date of Summary: 21-MAY-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A001 Paleo Done By: OPERATOR

API Well Number: 177014031900 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 09-NOV-2010 Ecozone Eq MMS:

Borehole MD: 9458
Borehole TVD: 7500
Rkb Elevation: 94

First Sample Examined:

Water Depth: 78

Paleo ID: 001

0

Remark:

Lease Number: G21553

MD / TVD		Paleo Top Description	Ecozone	
6500 / 5386	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT	
8230 / 6604	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT	

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1260

6900

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 370 Date of Summary: 12-SEP-2001 First Sample Examined: 0 7212

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G21553 **Borehole MD:** 

Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 

Drilling Operator: WESTPORT OIL AND GAS COMPANY LP **API Well Number: 177014032200 Rkb Elevation:** 94

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 77 Water Depth:

Public Info Code: Y 24-NOV-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD		Paleo Top Description	<u>Ecozone</u>
5600 / 5360	DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
5900 / 5645	DEF	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1261

0

7777

6600

94

77

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 370 Date of Summary: 22-MAY-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A003 Paleo Done By: OPERATOR

API Well Number: 177014032300 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 06-DEC-2010 Ecozone Eq MMS:

ange: 0 - 0 Water Depth:

MMS: Paleo ID:

Remark:

Lease Number: G21553

MD / TVD	Paleo Top Description	<u>Ecozone</u>
6450 / 5433	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
6700 / 5650	DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1262

0

7963

6700

94

77

001

First Sample Examined:

**Borehole MD:** 

**Borehole TVD:** 

**Rkb Elevation:** 

Water Depth:

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Lease Number: G21553

Area Block: WC 370 Date of Summary: 21-MAY-2001

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A004 Paleo Done By: OPERATOR

API Well Number: 177014032400 Drilling Operator: WESTPORT OIL AND GAS COMPANY LP

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 23-DEC-2010 Ecozone Eq MMS:

Remark:

MD / TVDPaleo Top DescriptionEcozone6650 / 5388DEF AT Upper Pliocene (Gelasian) Lenticulina 1DEF AT7000 / 5738DEF AT Upper Pliocene (Piacenzian) Globoquadrina altispiraDEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1263

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 371 Date of Summary: 29-JAN-2010 First Sample Examined: 5450 Lease Number: G33056 Source of Paleo: OPERATOR **Borehole MD:** 11194 Well Name: 001 Paleo Done By: PALEO SOURCE **Borehole TVD:** 10200 **Drilling Operator:** CENTURY EXPLORATION NEW ORLEANS INC **API Well Number:** 177014041300 **Rkb Elevation:** 111 Paleo Report Num: 1 of 1 **Sample Range:** 5450 - 11194 80 Water Depth: Ecozone Eq MMS: Y Public Info Code: Y 23-AUG-2010 Paleo ID: 001

Remark: Foram species abundance and diversity table available, see report for details

MD / TVD		Paleo Top Description		Ē	cozone
5450 / 4978	DEF	AT first sample examined	DEF	AT	2
5451 / 4979	POS	IN Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	2
5600 / 5102	DEF	IN Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	IN	2
5750 / 5227	DEF	AT local marker benthic foram increase	DEF	AT	3
5930 / 5376	DEF	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	ΑT	3
6770 / 6074	DEF	AT transported shelf fauna	DEF	ΑT	3
7610 / 6773	DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	ΑT	3
7850 / 6977	DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	IN	3
8569 / 7626	POS	AT unconformity	DEF	IN	3
8570 / 7627	POS	AT Upper Miocene (Messinian) Textularia "X"	DEF	IN	3
8930 / 7971	POS	AT unconformity	DEF	AT	4
8960 / 8000	DEF	AT Upper Miocene (Messinian) Textularia tatumi	DEF	IN	4
9380 / 8415	POS	AT Upper Miocene (Messinian) Bolivina denticulata	DEF	IN	4
9740 / 8774	POS	IN Upper Miocene (Messinian) Siphogenerina lamellata (acme)	DEF	ΑT	5
10279 / 9307	POS	AT unconformity	DEF	ΑT	5
10280 / 9308	DEF	AT Cyclammina cancellata (local marker)	DEF	ΑT	5
10730 / 9750	POS	AT Upper Miocene (Tortonian) Robulus "E"	DEF	AT	5
11194 / 10200	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1264

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 489 6354 Date of Summary: 17-NOV-2005 First Sample Examined: Lease Number: G24760 Source of Paleo: OPERATOR 15142 **Borehole MD:** Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 13137 **Drilling Operator:** GRYPHON EXPLORATION COMPANY **API Well Number:** 177024134301 **Rkb Elevation:** 126 **Sample Range:** 6354 - 15140 142 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 30-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity chart available, see report for details

MD / TVD	_	Paleo Top Description		<u>E</u>	cozone
6354 / 635	4 DEF	AT first sample examined	DEF	AT	2
6610 / 661	0 DEF	AT Upper Pliocene (Gelasian) Lenticulina 1	DEF	AT	3
7359 / 735	7 DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	3
7360 / 735	8 POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	3
7540 / 753	8 DEF	AT	DEF	AT	4
8540 / 853	3 DEF	AT Lower Pliocene (Zanclian) Buccella (Eponides) hannai (acme)	DEF	AT	4
8900 / 888	POS POS	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5
8959 / 893	8 DEF	AT Lower Pliocene (Zanclian) Pseudosphenolithus abies "B" (acme)	DEF	AT	5
8960 / 893	9 DEF	AT Lower Pliocene (Zanclian) Globorotalia margaritae	DEF	AT	5
9289 / 924	6 DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies "B"	DEF	AT	6
9290 / 924	7 DEF	AT Lower Pliocene (Zanclian) Globigerina nepenthes	DEF	AT	6
9499 / 943	4 DEF	AT Lower Pliocene (Zanclian) Amaurolithus tricorniculatus	DEF	AT	6
9500 / 943	5 DEF	AT Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	6
9620 / 954	2 DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	6
9680 / 959	5 DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
9770 / 967	3 DEF	AT Upper Miocene (Messinian) Globorotalia menardii (coiling change right/left)	DEF	AT	6
9830 / 972	5 DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus (increase)	DEF	AT	6
10610 / 1031	4 DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
10640 / 1033	4 DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	6
10820 / 1045	0 DEF	AT Upper Miocene (Messinian) Globorotalia margaritae primitiva	DEF	AT	6
11569 / 1090	3 POS	AT salt weld	DEF	AT	6
11570 / 1090	3 DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT	6

GEOLOGIC

02-FEB-2011 PAGE: 1265

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 489 Date of Summary: 17-NOV-2005 First Sample Examined: 6354 Lease Number: G24760 Source of Paleo: OPERATOR **Borehole MD:** 15142 13137 Well Name: A002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD: Drilling Operator:** GRYPHON EXPLORATION COMPANY **API Well Number:** 177024134301 **Rkb Elevation:** 126 **Sample Range:** 6354 - 15140 Paleo Report Num: 1 of 1 142 Water Depth: Public Info Code: Y 30-APR-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u> </u>	<u> Ecozone</u>
14540 / 12761	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT	6
14750 / 12895	DEF	AT Upper Miocene (Tortonian) Discoaster calcaris	DEF	AT	6
14960 / 13024	DEF	AT Upper Miocene (Tortonian) Discoaster loeblichii	DEF	AT	6
15140 / 13136	DEF	AT last sample examined	DEF	ΑT	6

#### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 

02-FEB-2011 PAGE: 1266

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 499 Date of Summary: 05-MAR-2001

First Sample Examined: 0 9647

Lease Number: G15104 Well Name: A002

Source of Paleo: COMPLETION REPORT (WELL SUMMARY) **Borehole MD:** Paleo Done By: OPERATOR

**Borehole TVD:** 7900

**API Well Number:** 177024126800

**Drilling Operator: SAMEDAN OIL CORPORATION** 

**Rkb Elevation:** 105

Paleo Report Num: 1 of 1

0 - 0 Sample Range:

Water Depth: 165 001

Public Info Code: Y 27-SEP-2010

**Ecozone Eq MMS:** 

Paleo ID:

Remark:

MD / TVD

**Paleo Top Description** 

**Ecozone** 

5253 / 4878

DEF IN Lower Pleistocene (Calabrian) Angulogerina "B"

DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1267

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 504 Date of Summary: 08-FEB-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G02006 **Borehole MD:** 6080 Well Name: A003 Paleo Done By: OPERATOR **Borehole TVD:** 5534 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177024058001 **Rkb Elevation:** 111 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 147 Water Depth: Public Info Code: Y 27-OCT-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
4240 / 3885	DEF AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF AT
5612 / 5111	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1268

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 504 Date of Summary: 26-FEB-1999 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16201 9874 **Borehole MD:** Well Name: B001 Paleo Done By: OPERATOR **Borehole TVD:** 6679 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177024119700 **Rkb Elevation:** 127 0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 153 Public Info Code: Y 29-JAN-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVDPaleo Top DescriptionEcozone4940 / 3516DEF AT Lower Pleistocene (Calabrian) Angulogerina "B"DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1269

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 504 Date of Summary: 23-DEC-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16201 8714 **Borehole MD:** Well Name: B006 Paleo Done By: OPERATOR **Borehole TVD:** 6591 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number:** 177024122200 **Rkb Elevation:** 127 0 - 0 Paleo Report Num: 1 of 1 Sample Range: Water Depth: 153 Public Info Code: Y 02-DEC-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVDPaleo Top DescriptionEcozone5620 / 4472DEF AT Lower Pleistocene (Calabrian) Angulogerina "B"DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1270

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 538 Date of Summary: 28-MAR-2001 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G02551 **Borehole MD:** 12077 Well Name: A007 Paleo Done By: OPERATOR **Borehole TVD:** 11544 Drilling Operator: EL PASO EXPLORATION & PRODUCTION MANAGEMEN **API Well Number: 177024068201 Rkb Elevation:** 99 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 186

Public Info Code: Y 27-JAN-2009 Ecozone Eq MMS: Paleo ID: 001

Remark: Company-integrated foram and nanno report, in=sand

MD / TVD		Paleo Top Description		<u>Ecozone</u>
6710 / 6356	DEF IN	N Lower Pleistocene (Calabrian) Angulogerina "B"	DEF A	Γ
10486 / 10081	DEF IN	Upper Pliocene (Gelasian) Discoaster brouweri	DEF A	Γ

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1271

0

12265

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 540 Date of Summary: 28-AUG-1998

Source of Paleo: COMPLETION REPORT (WELL SUMMARY)

Well Name: A004 Paleo Done By: OPERATOR

API Well Number: 177024120700 Drilling Operator: EQUITABLE PRODUCTION COMPANY

Paleo Report Num: 1 of 1 Sample Range: 0 - 0

Public Info Code: Y 12-AUG-2008 Ecozone Eq MMS:

Borehole TVD: 10651
Rkb Elevation: 127
Water Depth: 185
Paleo ID: 001

**Borehole MD:** 

First Sample Examined:

Remark:

Lease Number: G15110

MD / TVD Paleo Top Description Ecozone

11670 / 10115 DEF AT Upper Pliocene (Gelasian) Cristellaria "S" DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1272

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 567 Date of Summary: 13-MAY-2004 First Sample Examined: 7980 Lease Number: G24765 Source of Paleo: OPERATOR **Borehole MD:** 12248 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 12243 **Drilling Operator:** GRYPHON EXPLORATION COMPANY **API Well Number:** 177024132200 **Rkb Elevation:** 85 Paleo Report Num: 1 of 1 **Sample Range:** 7980 - 12240 201 Water Depth: Public Info Code: Y 22-OCT-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD / TVD		Paleo Top Description		Eco	zone
7980 / 7979	DEF	AT first sample examined	POS	AT	3
8040 / 8039	POS	IN Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	3
8760 / 8759	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
9480 / 9477	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	4
9690 / 9687	DEF	AT faunal change (no faunal increase)	DEF	AT	3
10560 / 10556	DEF	AT faunal change (no faunal increase)	DEF	AT	4
10830 / 10826	DEF	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	4
12240 / 12235	DEF	AT last sample examined	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 1273

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 598 Date of Summary: 13-JAN-1998 First Sample Examined: 5330 Lease Number: G17815 Source of Paleo: OPERATOR **Borehole MD:** 10851 Well Name: A001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 9809 **Drilling Operator:** EOG RESOURCES INC **API Well Number:** 177024117700 **Rkb Elevation:** 94 Paleo Report Num: 1 of 1 **Sample Range:** 5330 - 10850 Water Depth: 256 Public Info Code: Y 15-JAN-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

#### Remark:

MD/	TVD		Paleo Top Description		<u>Ecoz</u>	<u>zone</u>
5330 /	5048	DEF	AT first sample examined	POS	AT	3
5331 /	5049	DEF	AT cement	POS	AT	3
5600 /	5277	DEF	AT local marker benthic foram increase	DEF	AT	3
5660 /	5328	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	AT	3
5930 /	5556	DEF	AT Lower Pleistocene (Calabrian) Trimosina "A" (acme)	DEF	AT	3
6920 /	6387	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	3
7670 /	7012	POS	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF	AT	4
7970 /	7261	DEF	AT Lower Pleistocene (Calabrian) Uvigerina hispida	DEF	AT	4
8000 /	7286	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	4
8030 /	7311	DEF	AT local marker benthic foram increase	DEF	AT	3
8090 /	7362	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF	AT	3
9290 /	8393	DEF	AT Upper Pliocene (Gelasian) Globorotalia menardii (coiling change left/right)	DEF	AT	3
9620 /	8689	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	AT	3
9740 /	8798	POS	AT Upper Pliocene (Gelasian) Bolivina imporcata / "P"	DEF	AT	3
9859 /	8905	DEF	AT pyrite	DEF	AT	4
9860 /	8906	DEF	AT local marker benthic foram increase	DEF	AT	4
10850 /	9808	DEF	AT last sample examined	DEF	AT	4

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1274

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC 598	Date of Summary: 23-FEB-1998	First Sample Examined:	0
Lease Number: G17815	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	9811
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	9373
API Well Number: 177024118601	Drilling Operator: EOG RESOURCES INC	Rkb Elevation:	94
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	260
Public Info Code: Y 22-FEB-2008	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

<u>MD / TVD</u>		Paleo Top Description		<b>Ecozone</b>
7032 / 6839	DEF	AT Lower Pleistocene (Calabrian) Angulogerina "B"	DEF A	ΑT
7344 / 7116	DEF	AT Upper Pliocene (Gelasian) Cristellaria "S"	DEF A	ΑT
8826 / 8464	DEF	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF .	ΑT

GEOLOGIC

PAGE: 1275

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 617 Date of Summary: 26-MAY-1998 3930 First Sample Examined: Lease Number: G13852 Source of Paleo: OPERATOR **Borehole MD:** 9670 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7926 Drilling Operator: MCMORAN OIL & GAS CO **API Well Number:** 177024120500 **Rkb Elevation:** 91 Paleo Report Num: 1 of 2 **Sample Range:** 3930 - 9660 299 Water Depth: Public Info Code: Y 13-JUN-2008 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
3930 / 3669	DEF	AT first sample examined	POS A	T 3
4500 / 4099	DEF	IN Middle Pleistocene (Ionian) Trimosina "A"	DEF A	Т 3
6120 / 5348	DEF	AT sample gap top	POS A	Т 3
6210 / 5417	DEF	AT sample gap bottom	DEF A	Т 3
6510 / 5642	DEF	AT sample gap top	POS A	Т 3
6660 / 5754	DEF	AT sample gap bottom	DEF A	Т 3
9150 / 7583	DEF	AT faunal change (no faunal increase)	DEF A	T 2
9660 / 7919	DEF	AT last sample examined	DEF A	T 2

GEOLOGIC 02-FEB-2011

PAGE: 1276

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WC 617 Date of Summary: 26-MAY-1998 3930 First Sample Examined: Lease Number: G13852 Source of Paleo: OPERATOR **Borehole MD:** 9670 Well Name: 002 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 7926 Drilling Operator: MCMORAN OIL & GAS CO **API Well Number:** 177024120500 **Rkb Elevation:** 91 Paleo Report Num: 2 of 2 **Sample Range:** 3930 - 9660 299 Water Depth: Public Info Code: Y 13-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>Ecozone</u>
3930 / 3669	DEF	AT first sample examined	DEF	AT
3931 / 3670	DEF	IN Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
9660 / 7919	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1277

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WC	617 Date of Summary:	30-APR-1998	First Sample Examined:	3500
Lease Number: G138	52 Source of Paleo:	OPERATOR	Borehole MD:	9907
Well Name: B001	Paleo Done By:	PALEO-DATA, INC.	Borehole TVD:	8732
API Well Number: 17702	24120100 <b>Drilling Operator</b> :	MCMORAN OIL & GAS CO	Rkb Elevation:	91
Paleo Report Num: 1	of 2 Sample Range:	3500 - 9890	Water Depth:	299
Public Info Code: Y 19	9-MAY-2008 Ecozone Ea MMS:	Υ	Paleo ID:	001

Remark: Foram species abundance and diversity chart available, see report for details

MD/T	<u>rvd</u>		Paleo Top Description		Eco <sub>7</sub>	zone
3510 / 3	3510	DEF	AT first sample examined	POS	AT	3
4190 /	4190	DEF	AT Middle Pleistocene (Ionian) Trimosina "A"	DEF	AT	3
8780 / 8	8062	DEF	AT	DEF	AT	2
9890 / 8	8729	DEF	AT last sample examined	DEF	AT	2

GEOLOGIC

02-FEB-2011 PAGE: 1278

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:	WC 617	Date of Summary: 30-APR-1998	First Sample Examined:	3510
Lease Number:	G13852	Source of Paleo: OPERATOR	Borehole MD:	9907
Well Name:	B001	Paleo Done By: PALEO-DATA, INC.	Borehole TVD:	8732
<b>API Well Number:</b>	177024120100	Drilling Operator: MCMORAN OIL & GAS CO	Rkb Elevation:	91
Paleo Report Num:	2 of 2	<b>Sample Range:</b> 3510 - 9890	Water Depth:	299
Public Info Code:	Y 19-MAY-2008	Ecozone Eq MMS:	Paleo ID:	002

Remark: Calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD	Paleo Top Description	<u>Ecozone</u>
3510 / 3510	DEF AT first sample examined	DEF AT
4040 / 4040	POS AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF AT
9890 / 8729	DEF AT last sample examined	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1279

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WD 39 Date of Summary: 18-DEC-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16469 **Borehole MD:** 10700 Well Name: A001 Paleo Done By: OPERATOR **Borehole TVD:** 10700 **Drilling Operator:** EL PASO PRODUCTION GOM INC **API Well Number: 177194066000 Rkb Elevation:** 104 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 82 Water Depth: Public Info Code: Y 30-JUN-2008 **Ecozone Eq MMS:** Paleo ID: 001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
3200 / 3200	DEF AT Upper Pliocene (Gelasian) Lenticulina 1	DEF AT
8580 / 8579	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
9110 / 9109	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1280

0

12491

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WD 58 Date of Summary: 18-MAY-2001 First Sample Examined:

 Lease Number:
 00146
 Source of Paleo:
 COMPLETION REPORT (WELL SUMMARY)
 Borehole MD:

Well Name: E001 Paleo Done By: OPERATOR Borehole TVD: 11400

API Well Number: 177194068600 Drilling Operator: STONE ENERGY LLC Rkb Elevation: 101

Paleo Report Num:1 of 1Sample Range:0 - 0Water Depth:50Public Info Code:Y 09-MAR-2010Ecozone Eq MMS:Paleo ID:001

Remark:

MD / TVD Paleo Top Description Ecozone

11585 / 10613 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1281

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:WD58Date of Summary:07-JUL-2000First Sample Examined:0Lease Number:00146Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:12536

Well Name: E002 Paleo Done By: OPERATOR Borehole TVD: 11528

API Well Number: 177194068800 Drilling Operator: STONE ENERGY LLC Rkb Elevation: 104

Paleo Report Num:1of1Sample Range:0 -0Water Depth:50Public Info Code:Y24-JUN-2010Ecozone Eq MMS:Paleo ID:001

Remark:

MD / TVD Paleo Top Description Ecozone

10550 / 10074 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1282

0

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WD 58 Date of Summary: 21-NOV-2000 First Sample Examined:

Lease Number:00146Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:11931Well Name:E003Paleo Done By:OPERATORBorehole TVD:11079

Well Name:E003Paleo Done By: OPERATORBorehole TVD:11079API Well Number:177194069400Drilling Operator:STONE ENERGY LLCRkb Elevation:100

Paleo Report Num:1of1Sample Range:0 -0Water Depth:50Public Info Code:Y22-NOV-2010Ecozone Eq MMS:Paleo ID:001

Remark:

MD / TVD Paleo Top Description Ecozone

10515 / 10015 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1283

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WD 59 Date of Summary: 28-FEB-2000 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G16473 **Borehole MD:** 13994 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 12819 **Drilling Operator: STONE ENERGY LLC API Well Number: 177194068000 Rkb Elevation:** 95 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 60 Water Depth: Public Info Code: Y 31-DEC-2009 **Ecozone Eq MMS:** Paleo ID: 001

Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10940 / 10605	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
13600 / 12515	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1284

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WD 59 Date of Summary: 03-OCT-2001 First Sample Examined: 0

Lease Number:G16473Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:14435Well Name:002Paleo Done By:OPERATORBorehole TVD:13277

Well Name:002Paleo Done By: OPERATORBorehole TVD:13277API Well Number:177194069500Drilling Operator:STONE ENERGY LLCRkb Elevation:96

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 60

Public Info Code: Y 30-DEC-2010 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

11482 / 11351 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1285

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WD 61 Date of Summary: 19-APR-1999 First Sample Examined: 0

Lease Number:G03186Source of Paleo:COMPLETION REPORT (WELL SUMMARY)Borehole MD:15069

Well Name:B001Paleo Done By: OPERATORBorehole TVD:12793

API Well Number: 177194066400 Drilling Operator: STONE ENERGY LLC Rkb Elevation: 83

Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 105

Public Info Code: Y 08-JUL-2008 Ecozone Eq MMS: Paleo ID: 001

Remark:

MD / TVD Paleo Top Description Ecozone

12815 / 11353 DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A" DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1286

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WD 63	Date of Summary: 17-MAR-2000	First Sample Examined:	0
Lease Number: G19839	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14308
Well Name: A001	Paleo Done By: OPERATOR	Borehole TVD:	13920
API Well Number: 177194067501	Drilling Operator: STONE ENERGY LLC	Rkb Elevation:	92
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	136
Public Info Code: Y 27-AUG-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD/TVD	Paleo Top Description	<u>Ecozone</u>
10000 / 9997	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
12050 / 11949	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT
13890 / 13550	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1287

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WD 63	Date of Summary: 13-JUN-2001	First Sample Examined:	0
Lease Number: G19839	Source of Paleo: COMPLETION REPORT (WELL SUMMARY)	Borehole MD:	14535
Well Name: A002	Paleo Done By: OPERATOR	Borehole TVD:	13810
API Well Number: 177194067701	Drilling Operator: STONE ENERGY LLC	Rkb Elevation:	92
Paleo Report Num: 1 of 1	Sample Range: 0 - 0	Water Depth:	136
Public Info Code: Y 06-OCT-2009	Ecozone Ea MMS:	Paleo ID:	001

#### Remark:

MD / TVD	Paleo Top Description	<u>Ecozone</u>
10000 / 9992	DEF AT Upper Miocene (Tortonian) Bigenerina floridana / "A"	DEF AT
12300 / 12070	DEF AT Upper Miocene (Tortonian) Cyclammina 3	DEF AT
14190 / 13564	DEF AT Upper Miocene (Tortonian) Discorbis 12	DEF AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1288

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WD 65 Date of Summary: 05-FEB-1998 First Sample Examined: 0 Source of Paleo: COMPLETION REPORT (WELL SUMMARY) Lease Number: G01082 **Borehole MD:** 4034 Well Name: A002 Paleo Done By: OPERATOR **Borehole TVD:** 2923 **Drilling Operator: BURLINGTON RESOURCES OFFSHORE INC API Well Number:** 177194065400 **Rkb Elevation:** 100 Paleo Report Num: 1 of 1 Sample Range: 0 - 0 Water Depth: 140 Public Info Code: Y 02-FEB-2008 **Ecozone Eq MMS:** Paleo ID: 001

Remark: In=sand

MD / TVD	Paleo Top Description	<u>Ecozone</u>
2054 / 2050	DEF IN Middle Pleistocene (Ionian) Trimosina "A"	DEF AT
3503 / 2918	DEF IN Lower Pleistocene (Calabrian) Angulogerina "B"	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1289

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WD 109 Date of Summary: 20-FEB-2000 9015 First Sample Examined: Lease Number: G02937 Source of Paleo: OPERATOR 12390 **Borehole MD:** Well Name: 007 Paleo Done By: OPERATOR **Borehole TVD:** 12238 **Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number: 177194068300 Rkb Elevation:** 115 **Sample Range:** 9015 - 12205 132 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 18-MAR-2010 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: 11045=local Textularia articulata zone, 11845=W-fauna, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u> </u>	<u>Ecozone</u>
9015 / 8944	DEF	AT first sample examined	DEF	IN	2
9016 / 8945	DEF	IN Lower Pliocene (Zanclian) Buliminella 1	DEF	IN	2
9075 / 9001	DEF	AT Lower Pliocene (Zanclian) Sigmoilina "P" / cf. schlumbergeri	DEF	IN	3
9135 / 9057	DEF	AT Turtle Grass fauna = Amphistegina Mound	POS	IN	3
9165 / 9085	DEF	AT local marker foram decrease	DEF	AT	3
9195 / 9114	DEF	AT faunal change (no faunal increase)	DEF	IN	2
9255 / 9170	DEF	AT drilling material	DEF	IN	2
9585 / 9479	POS	AT Arenaceous fauna (local marker)	DEF	IN	2
9805 / 9685	DEF	AT limestone	DEF	IN	2
10014 / 9883	DEF	AT turbid water facies	DEF	IN	2
10015 / 9884	DEF	AT Upper Miocene (Messinian) Textularia "X"	DEF	IN	2
10485 / 10340	DEF	AT Turtle Grass fauna = Amphistegina Mound	DEF	IN	2
10494 / 10349	DEF	AT pyrite	DEF	IN	2
10495 / 10350	DEF	AT shell fragments	DEF	IN	2
10855 / 10704	DEF	AT shell fragments	DEF	IN	2
11095 / 10944	DEF	IN Upper Miocene (Messinian) Textularia "X"	DEF	IN	2
11155 / 11004	DEF	AT shell fragments	DEF	IN	2
11485 / 11333	DEF	AT Turtle Grass fauna = Amphistegina Mound	DEF	IN	2
11515 / 11363	DEF	AT drilling material	POS	IN	2
11545 / 11393	DEF	AT faunal change (no faunal increase)	DEF	IN	2
11695 / 11543	DEF	AT turbid water facies	POS	IN	2
11755 / 11603	DEF	AT Arenaceous fauna (local marker)	DEF	IN	2

**GEOLOGIC** 02-FEB-2011

PAGE: 1290

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WD 109 Date of Summary: 20-FEB-2000 First Sample Examined: 9015 Source of Paleo: OPERATOR Lease Number: G02937 **Borehole MD:** 12390 12238 Well Name: 007 Paleo Done By: OPERATOR **Borehole TVD: Drilling Operator: TEXACO EXPLORATION AND PROD API Well Number:** 177194068300 **Rkb Elevation:** 115 Paleo Report Num: 1 of 1 **Sample Range:** 9015 - 12205 132 Water Depth: Paleo ID: 002

Public Info Code: Y 18-MAR-2010 **Ecozone Eq MMS:** Y

MD / TVD		Paleo Top Description		Eco	zone
11845 / 11693	POS	AT Upper Miocene (Tortonian) Sphaeroidinellopsis disjuncta	DEF	AT	4
11874 / 11722	DEF	AT Cyclammina cancellata (local marker)	DEF	AT	4
11875 / 11723	POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
11964 / 11812	DEF	AT limestone	DEF	IN	3
11965 / 11813	DEF	AT Arenaceous fauna (local marker)	DEF	IN	3
12025 / 11873	DEF	AT reworked material	DEF	AT	3
12055 / 11903	DEF	AT local marker foram decrease	DEF	AT	4
12115 / 11963	DEF	AT faunal change (no faunal increase)	DEF	AT	3
12175 / 12023	DEF	AT Arenaceous fauna (local marker)	DEF	AT	3
12205 / 12053	DEF	AT last sample examined	DEF	AT	3

GEOLOGIC 02-FEB-2011 PAGE: 1291

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 30 Date of Summary: 30-JAN-2002 9690 First Sample Examined: Lease Number: G20261 Source of Paleo: OPERATOR 22881 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22857 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608124000600 **Rkb Elevation:** 83 Paleo Report Num: 1 of 2 **Sample Range:** 9690 - 16020 6566 Water Depth: Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
9690 / 9690	DEF	AT first sample examined	DEF	AT	5
9840 / 9840	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
10620 / 10620	DEF	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	5
13830 / 13827	DEF	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "A")	DEF	ΑT	5
14760 / 14755	POS	AT out-of-place section	DEF	ΑT	5
14761 / 14756	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
14820 / 14815	DEF	AT salt	DEF	ΑT	5
16020 / 16011	DEF	AT last sample examined	DEF	ΑT	5

GEOLOGIC 02-FEB-2011

PAGE: 1292

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 30 9690 Date of Summary: 30-JAN-2002 First Sample Examined: Lease Number: G20261 Source of Paleo: OPERATOR 22881 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 22857 **API Well Number:** 608124000600 **Drilling Operator: MARATHON OIL COMPANY Rkb Elevation:** 83 Paleo Report Num: 2 of 2 **Sample Range:** 9690 - 16020 Water Depth: 6566 Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Calcareous nannofossil report, mixed coccolith assemblages from 13860 to 14440, and from 14550 to 14760, from 15330, mixed Late Miocene flora to 15420, well was drilled to a depth of 28043 but samples were not analyzed below 16020, nannospecies abundance and diversity chart available, see

report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
9690 / 9690	DEF	AT first sample examined	DEF	AT
9750 / 9750	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa "B"	DEF	AT
12570 / 12569	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
13620 / 13618	POS	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
13860 / 13857	DEF	AT out-of-place section	DEF	AT
14550 / 14546	DEF	AT out-of-place section	DEF	AT
14760 / 14755	DEF	IN salt	DEF	AT
15330 / 15323	DEF	AT out-of-place section	DEF	AT
16020 / 16011	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1293

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 30 21540 Date of Summary: 08-FEB-2008 First Sample Examined: Lease Number: G20261 Source of Paleo: OPERATOR 26382 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 24211 **Drilling Operator: MARATHON OIL COMPANY API Well Number:** 608124000603 **Rkb Elevation:** 82 **Sample Range:** 21540 - 26382 Paleo Report Num: 1 of 1 Water Depth: 6566 Public Info Code: Y 31-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description			Ecc	<u>ozone</u>
21540 / 20044	DEF	AT first sample examined	DE	F	AT	5
21541 / 20045	DEF	IN base of salt	DE	F	AT	5
21542 / 20046	DEF	IN out-of-place section	DE	F	AT	5
21870 / 20264	POS	AT sequence boundary	DE	F	AT	5
22290 / 20542	POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DE	F	AT	5
23250 / 21242	POS	AT Upper Miocene (Tortonian) Globorotalia mayeri	DE	F	AT	5
23279 / 21265	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DE	F	AT	5
23280 / 21266	POS	AT maximum flooding surface	DE	F	AT	5
23999 / 21884	POS	AT maximum flooding surface	DE	F	AT	5
24000 / 21885	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DE	F	AT	5
24030 / 21912	POS	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DE	F	AT	5
24540 / 22385	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DE	F	AT	5
24570 / 22414	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DE	F	AT	5
25290 / 23119	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DE	F	AT	5
25340 / 23169	POS	AT maximum flooding surface	DE	F	AT	5
25510 / 23339	POS	AT sequence boundary	DE	F	AT	5
25889 / 23718	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DE	F	AT	5
25890 / 23719	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DE	F	AT	5
25920 / 23749	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DE	F	AT	5
26370 / 24199	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DE	F	AT	5
26382 / 24211	DEF	AT last sample examined	DE	F	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1294

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 155 Date of Summary: 17-JAN-2008 First Sample Examined: 23149 Lease Number: G18649 Source of Paleo: OPERATOR 24485 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 23412 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608124002800 **Rkb Elevation:** 80 **Sample Range:** 23149 - 24350 5906 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 04-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD	Paleo Top Description		<b>Ecozone</b>
23149 / 22249	DEF AT first sample examined	DEF	AT
23150 / 22250	DEF IN salt	DEF	AT
23269 / 22353	POS IN out-of-place section	DEF	AT
23270 / 22354	POS IN local marker floral increase	DEF	AT
23299 / 22379	POS IN Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	AT
23300 / 22380	POS IN Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
24158 / 23127	DEF AT local marker planktic foram increase	DEF	AT 4
24159 / 23128	POS AT Lower Cretaceous (Aptian) Ticinella bejaouaensis	DEF	AT 4
24160 / 23129	POS AT Lower Cretaceous (Aptian) Hedbergella sigali	DEF	AT 4
24199 / 23163	DEF AT limestone	DEF	AT 4
24200 / 23164	DEF AT local marker floral increase	DEF	AT 4
24288 / 23240	DEF AT local marker planktic foram increase	DEF	AT 4
24289 / 23241	POS AT Upper Cretaceous (Cenomanian) Favusella washitensis	DEF	AT 4
24290 / 23242	POS AT Lower Cretaceous (Albian) Ticinella roberti	DEF	AT 4
24350 / 23294	DEF AT last sample examined	DEF	AT 4

GEOLOGIC 02-FEB-2011 PAGE: 1295

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 155 18990 Date of Summary: 31-MAR-2008 First Sample Examined: Lease Number: G18649 Source of Paleo: OPERATOR 28512 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 27582 **Drilling Operator:** KERR-MCGEE OIL & GAS CORPORATION API Well Number: 608124002801 **Rkb Elevation:** 80 **Sample Range:** 18990 - 28512 5882 Paleo Report Num: 1 of 1 Water Depth: Public Info Code: Y 04-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description			Ecoz	<u>cone</u>
18990 / 18618	DEF	AT first sample examined	DE	F A	T	
18991 / 18618	DEF	IN salt	DE	F A	T	
22680 / 22173	DEF	AT out-of-place section	DE	F A	Т	5
22730 / 22223	DEF	AT	DE	F A	Т	4
22820 / 22313	DEF	AT	DE	F A	Т	5
23000 / 22493	DEF	AT	DE	F A	T	4
23300 / 22793	DEF	AT	PC	S A	T	3
23390 / 22883	DEF	AT	DE	F A	T	5
23450 / 22943	DEF	AT	PC	S A	T	5
23690 / 23183	DEF	AT	DE	F A	Т	3
23810 / 23303	DEF	IN Upper Miocene (Tortonian) Coccolithus miopelagicus	DE	F A	T	4
23870 / 23363	DEF	AT	DE	F A	T	5
23897 / 23390	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DE	F A	T	5
23898 / 23391	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus	DE	F A	T	5
23899 / 23392	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi fohsi	DE	F A	T	5
23900 / 23393	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DE	F A	T	5
23930 / 23423	POS	IN Middle Miocene (Serravallian) Discoaster sanmiguelensis	DE	F A	T	5
23960 / 23453	DEF	AT	DE	F IN	1	5
24020 / 23513	DEF	AT	DE	F A	Т	5
24140 / 23633	DEF	AT	DE	F A	Т	4
24500 / 23993	POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DE	F A	Т	4
24680 / 24173	POS	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DE	F A	Т	4

GEOLOGIC 02-FEB-2011

PAGE: 1296

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WR 155

Date of Summary: 31-MAR-2008

Lease Number: G18649

Source of Paleo: OPERATOR

Borehole MD: 28512

Well Name: 001

Baleo Done By: PALEO-DATA INC

Well Name: 001 Paleo Done By: PALEO-DATA, INC. Borehole TVD: 27582

API Well Number: 608124002801 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION Rkb Elevation: 80
Paleo Report Num: 1 of 1 Sample Range: 1899 - 28512 Water Depth: 5882

Public Info Code: Y 04-JUL-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		<u>E</u>	cozone
24710 / 24203	DEF	AT out-of-place section	DEF	AT	4
25008 / 24499	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT	4
25009 / 24500	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	4
25010 / 24501	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT	4
25245 / 24732	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT	5
25246 / 24733	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT	5
25247 / 24734	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT	5
25248 / 24735	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT	5
25249 / 24736	DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	5
25250 / 24737	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT	5
25400 / 24882	POS	AT Lower Oligocene (Rupelian) Discoaster nodifer	DEF	AT	5
25490 / 24967	POS	AT Lower Oligocene (Rupelian) Reticulofenestra hampdenensis	DEF	AT	5
25610 / 25080	POS	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	AT	5
25699 / 25161	POS	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT	5
25700 / 25162	POS	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT	5
25730 / 25190	DEF	IN Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	5
25758 / 25215	POS	AT Upper Eocene (Priabonian) Discoaster saipanensis	DEF	AT	5
25759 / 25216	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT	5
25760 / 25217	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	AT	5
25790 / 25244	POS	AT Upper Eocene (Priabonian) Globorotalia pomeroli	DEF	AT	5
25850 / 25297	POS	AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	AT	5
25880 / 25324	POS	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	5
25910 / 25350	POS	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT	5
25940 / 25376	DEF	AT radiolarians	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1297

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 155 Date of Summary: 31-MAR-2008 First Sample Examined: 18990 Lease Number: G18649 Source of Paleo: OPERATOR **Borehole MD:** 28512 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 27582 Drilling Operator: KERR-MCGEE OIL & GAS CORPORATION **API Well Number:** 608124002801 **Rkb Elevation:** 80 Paleo Report Num: 1 of 1 **Sample Range:** 18990 - 28512 5882 Water Depth:

Public Info Code: Y 04-JUL-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ecozo	<u>one</u>
26629 / 25968	POS	AT Lower Eocene (Ypresian) Toweius crassus	DEF	AT	5
26630 / 25968	POS	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT	5
26660 / 25994	POS	AT Upper Paleocene (Thanetian) Toweius eminens	DEF	AT	5
26750 / 26072	POS	AT Upper Paleocene (Thanetian) Chiasmolithus bidens	DEF	AT	4
27080 / 26355	DEF	AT	DEF	AT	5
27200 / 26458	DEF	AT	POS	AT	4
27620 / 26818	POS	AT Upper Paleocene (Thanetian) Cruciplacolithus tenuis (increase)	POS	AT	4
27860 / 27024	POS	AT Lower Paleocene (Danian) Chiasmolithus danicus	POS	AT	4
28010 / 27153	DEF	AT	DEF	AT	4
28250 / 27358	POS	AT out-of-place section	POS	AT	4
28400 / 27486	DEF	AT radiolarians	POS	AT	5
28430 / 27512	POS	AT out-of-place section	POS	AT	5
28488 / 27562	DEF	AT Upper Cretaceous (Maastrichtian) Micula prinsii (FAD)	DEF	AT	
28489 / 27563	DEF	AT Upper Cretaceous (Maastrichtian) Micula murus (FAD)	DEF	AT	
28490 / 27563	DEF	AT Upper Cretaceous (Maastrichtian) Watznaueria barnesae (FAD)	DEF	AT	
28512 / 27582	DEF	AT last sample examined	DEF	AT	

GEOLOGIC 02-FEB-2011 PAGE: 1298

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 278 Date of Summary: 01-FEB-2008 24900 First Sample Examined: Lease Number: G18675 Source of Paleo: OPERATOR 33513 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 31845 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608124002500 **Rkb Elevation:** 86 **Sample Range:** 24900 - 33513 6475 Paleo Report Num: 1 of 2 Water Depth: Public Info Code: Y 09-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Chuck Prospect, foram species abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<u>E</u>	cozone
24900 / 24567	DEF	AT first sample examined	POS	AT	5
24930 / 24595	DEF	AT	DEF	AT	5
25005 / 24666	DEF	AT	POS	AT	5
25109 / 24765	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	POS	ΑT	5
25110 / 24766	DEF	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	POS	AT	5
25200 / 24851	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	POS	AT	5
25230 / 24879	DEF	AT pyrite	POS	AT	5
25440 / 25075	DEF	AT	DEF	AT	4
25560 / 25187	POS	AT Arenaceous fauna (local marker)	POS	AT	5
25619 / 25241	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	AT	4
25620 / 25242	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	4
25709 / 25323	DEF	AT pyrite	DEF	AT	4
25710 / 25324	POS	AT local marker planktic foram increase	DEF	AT	4
26010 / 25594	DEF	AT pyrite	DEF	AT	4
26070 / 25647	DEF	AT	POS	AT	4
26220 / 25779	DEF	AT	DEF	AT	5
26729 / 26217	DEF	AT foram flood	DEF	AT	5
26730 / 26217	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
26759 / 26242	DEF	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	AT	5
26760 / 26243	DEF	AT Lower Miocene (Burdigalian) Discorbis bolivarensis	DEF	AT	5
26850 / 26318	DEF	AT pyrite	DEF	AT	4
27458 / 26826	DEF	AT pyrite	DEF	ΑT	4

GEOLOGIC 02-FEB-2011 PAGE: 1299

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 278 Date of Summary: 01-FEB-2008 First Sample Examined: 24900 Lease Number: G18675 Source of Paleo: OPERATOR **Borehole MD:** 33513 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 31845 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608124002500 **Rkb Elevation:** 86

> API Well Number: 608124002500 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP Rkb Elevation: 86
>
> Paleo Report Num: 1 of 2 Sample Range: 24900 - 33513 Water Depth: 6475

Public Info Code: Y 09-SEP-2008 Ecozone Eq MMS: Y

	Paleo Top Description		Eco	<u>ozone</u>
DEF	AT reworked material	DEF	AT	4
DEF	AT reworked material	DEF	AT	5
DEF	AT Lower Miocene (Aquitanian) Globigerinoides primordius	DEF	AT	5
DEF	AT sand	POS	AT	5
DEF	AT	DEF	AT	5
DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	AT	5
DEF	AT local marker planktic foram increase	DEF	AT	6
DEF	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	AT	6
DEF	AT	DEF	AT	5
POS	AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	AT	5
DEF	AT	POS	AT	5
POS	AT Lower Oligocene (Rupelian) Globorotalia increbescens	POS	AT	5
DEF	AT	DEF	AT	5
DEF	AT radiolarians	DEF	AT	6
DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	6
DEF	AT radiolarians	DEF	IN	6
DEF	AT radiolarians	DEF	AT	7
DEF	AT Middle Eocene (Bartonian) Truncorotaloides topilensis	DEF	IN	6
DEF	AT Middle Eocene (Lutetian) Morozovella aragonensis	DEF	AT	6
DEF	AT Lower Eocene (Ypresian) Acarinina soldadoensis	DEF	AT	6
DEF	AT radiolarians	DEF	AT	6
DEF	AT	DEF	IN	6
DEF	AT	DEF	AT	6
DEF	AT radiolarians	DEF	AT	7
	DEF DEF DEF DEF POS DEF	DEF AT reworked material  DEF AT reworked material  DEF AT Lower Miocene (Aquitanian) Globigerinoides primordius  DEF AT sand  DEF AT  DEF AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis  DEF AT local marker planktic foram increase  DEF AT Upper Oligocene (Chattian) Globorotalia opima opima  DEF AT  POS AT Lower Oligocene (Rupelian) Globigerina ampliapertura  DEF AT  POS AT Lower Oligocene (Rupelian) Globorotalia increbescens  DEF AT  DEF AT radiolarians  DEF AT radiolarians  DEF AT ridiolarians  DEF AT ridiolarians  DEF AT Middle Eocene (Bartonian) Truncorotaloides topilensis  DEF AT Middle Eocene (Lutetian) Morozovella aragonensis  DEF AT Lower Eocene (Ypresian) Acarinina soldadoensis  DEF AT radiolarians  DEF AT radiolarians  DEF AT Lower Eocene (Ypresian) Acarinina soldadoensis  DEF AT  DEF AT  DEF AT	DEF AT reworked material DEF DEF AT reworked material DEF DEF AT Lower Miocene (Aquitanian) Globigerinoides primordius DEF DEF AT Sand POS DEF AT DEF AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis DEF DEF AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis DEF DEF AT Upper Oligocene (Chattian) Globorotalia opima opima DEF DEF AT Upper Oligocene (Chattian) Globorotalia opima opima DEF DEF AT DEF DEF AT DEF DEF AT DEF DEF AT Lower Oligocene (Rupelian) Globigerina ampliapertura DEF DEF AT DEF DEF AT DEF DEF AT radiolarians DEF DEF AT radiolarians DEF DEF AT radiolarians DEF DEF AT radiolarians DEF DEF AT at Middle Eocene (Bartonian) Globorotalia bullbrooki DEF DEF AT Middle Eocene (Bartonian) Truncorotaloides topilensis DEF DEF AT Middle Eocene (Lutetian) Morozovella aragonensis DEF DEF AT Lower Eocene (Lypesian) Acarinina soldadoensis DEF DEF AT radiolarians DEF DEF AT Tradiolarians DEF DEF AT Tradiolarians DEF DEF AT Lower Eocene (Lypesian) Acarinina soldadoensis DEF DEF AT Tradiolarians DEF DEF AT Tradiolarians DEF DEF AT Tradiolarians DEF DEF AT Lower Eocene (Lypesian) Acarinina soldadoensis DEF DEF AT Tradiolarians DEF DEF AT Tradiol	DEF AT reworked material DEF AT DEF AT reworked material DEF AT reworked material DEF AT cover Miocene (Aquitanian) Globigerinoides primordius DEF AT DEF AT sand POS AT DEF AT  DEF AT Lower Miocene (Chattian) Globigerinoides primordius DEF AT DEF AT object and possible primordius DEF AT DEF AT object and possible primordius DEF AT DEF AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis DEF AT DEF AT Upper Oligocene (Chattian) Globorotalia opima opima DEF AT Object and possible primordius DEF AT DEF AT DEF AT AT DEF AT DEF AT madiolarians DEF AT DEF AT Middle Eocene (Bartonian) Globorotalia bullbrooki DEF AT DEF AT middle Eocene (Bartonian) Truncorotaloides topilensis DEF AT DEF AT Middle Eocene (Lutetian) Morozovella aragonensis DEF AT DEF AT AT Idode Eocene (Vpresian) Acarinina soldadoensis DEF AT DEF AT radiolarians DEF AT DEF AT Lower Eocene (Vpresian) Acarinina soldadoensis DEF AT DEF AT radiolarians DEF AT DEF AT Lower Eocene (Vpresian) Acarinina soldadoensis DEF AT DEF AT radiolarians DEF AT DEF AT Lower Eocene (Vpresian) Acarinina soldadoensis DEF AT DEF AT radiolarians DEF AT DEF AT radiolarians DEF AT DEF AT Tadiolarians DEF AT DEF AT Lower Eocene (Vpresian) Acarinina soldadoensis DEF AT

GEOLOGIC 02-FEB-2011

PAGE: 1300

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 278 Date of Summary: 01-FEB-2008 First Sample Examined: 24900 Lease Number: G18675 Source of Paleo: OPERATOR 33513 **Borehole MD:** Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 31845 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608124002500 **Rkb Elevation:** 86 Paleo Report Num: 1 of 2 **Sample Range:** 24900 - 33513 6475 Water Depth: Public Info Code: Y 09-SEP-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
31380 / 30074	DEF	AT	DEF	IN	6
31410 / 30099	DEF	AT	DEF	AT	6
31440 / 30124	DEF	AT radiolarians	DEF	AT	7
31470 /30148	DEF	AT	POS	AT	7
32840 / 31282	DEF	AT radiolarians	POS	AT	7
33513 / 31845	DEF	AT last sample examined	POS	AT	7

GEOLOGIC 02-FEB-2011 PAGE: 1301

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 278 Date of Summary: 01-FEB-2008 13100 First Sample Examined: Lease Number: G18675 Source of Paleo: OPERATOR 33513 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 31845 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608124002500 **Rkb Elevation:** 86 **Sample Range:** 13100 - 33513 Paleo Report Num: 2 of 2 6475 Water Depth: Public Info Code: Y 09-SEP-2008 **Ecozone Eq MMS:** Paleo ID: 002

Remark: Chuck Prospect, calcareous nannofossil report, nannospecies abundance and diversity chart available, see report for details

MD / TVD		Paleo Top Description		<b>Ecozone</b>
13100 / 13100	DEF	AT first sample examined	DEF	AT
13101 / 13101	DEF	IN salt	DEF	AT
14940 / 14940	DEF	AT sample gap top	DEF	AT
24899 / 24566	DEF	AT sample gap bottom	DEF	AT
24900 / 24567	DEF	AT out-of-place section	DEF	AT
24930 / 24595	POS	IN Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
25170 / 24823	POS	IN Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT
25380 / 25020	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
25920 / 25514	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
25980 / 25567	DEF	AT Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	AT
26010 / 25594	DEF	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	AT
26190 / 25753	DEF	AT local marker floral increase	DEF	AT
26490 / 26013	DEF	AT reworked material	DEF	AT
26940 / 26394	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF	AT
27240 / 26644	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
27750 / 27070	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
27840 / 27145	DEF	AT Lower Miocene (Aquitanian) Sphenolithus dissimilis	DEF	AT
28020 / 27295	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT
28140 / 27396	DEF	AT reworked material	DEF	AT
28409 / 27620	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	AT
28410 / 27621	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	AT
28740 / 27895	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT

**GEOLOGIC** 02-FEB-2011 PAGE: 1302

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 278 Date of Summary: 01-FEB-2008 First Sample Examined: 13100 Lease Number: G18675 Source of Paleo: OPERATOR **Borehole MD:** 33513 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 001 **Borehole TVD:** 31845 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608124002500 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 13100 - 33513 6475 Water Depth:

Public Info Code: Y 09-SEP-2008 **Ecozone Eq MMS:** Paleo ID:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
28830 / 27970	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
29490 / 28517	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT
29610 / 28618	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
29790 / 28768	DEF	AT local marker floral increase	DEF	AT
30030 / 28969	DEF	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	AT
30090 / 29019	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	AT
30450 / 29315	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	AT
30600 / 29438	DEF	AT Lower Oligocene (Rupelian) Reticulofenestra hillae	DEF	AT
30690 / 29511	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	AT
30750 / 29560	DEF	AT Lower Oligocene (Rupelian) Ismolithus recurvus	DEF	AT
30900 / 29683	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	AT
30960 / 29732	DEF	AT Upper Eocene (Priabonian) Discoaster saipanensis	DEF	AT
31050 / 29806	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT
31079 / 29829	DEF	AT Middle Eocene (Bartonian) Sphenolithus furcatolithoides	DEF	AT
31080 / 29830	DEF	AT Middle Eocene (Lutetian) Rhabdosphaera inflata	DEF	AT
31170 / 29903	DEF	AT local marker floral increase	DEF	AT
31320 / 30025	DEF	AT Middle Eocene (Lutetian) Discoaster Iodoensis	DEF	AT
31350 / 30050	DEF	AT Lower Eocene (Ypresian) Tribrachiatus orthostylus	DEF	AT
31410 / 30099	DEF	AT Lower Eocene (Ypresian) Chiasmolithus californicus	DEF	AT
31440 / 30124	DEF	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT
31499 / 30172	DEF	AT Lower Eocene (Ypresian) Toweius crassus	DEF	AT
31500 / 30173	DEF	AT Lower Eocene (Ypresian) Tribrachiatus contortus	DEF	AT
32270 / 30805	DEF	AT Upper Paleocene (Thanetian) Toweius eminens	DEF	AT
32510 / 31004	DEF	IN Upper Paleocene Thanetian Stage	DEF	AT

**GEPALDET** 

# UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC

02-FEB-2011 PAGE: 1303

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 278 Date of Summary: 01-FEB-2008 First Sample Examined: 13100 Lease Number: G18675 Source of Paleo: OPERATOR 33513 **Borehole MD:** Well Name: 001 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 31845 Drilling Operator: DEVON ENERGY PRODUCTION COMPANY LP **API Well Number:** 608124002500 **Rkb Elevation:** 86 Paleo Report Num: 2 of 2 **Sample Range:** 13100 - 33513 6475 Water Depth:

> Public Info Code:Y 09-SEP-2008Ecozone Eq MMS:Paleo ID:002

MD/TVD		Paleo Top Description		<u>Ecozone</u>
32810 / 31257	DEF	AT local marker floral increase	DEF	AT
32840 / 31282	DEF	AT Upper Paleocene (Thanetian) Fasciculithus tympaniformis	DEF	AT
33513 / 31845	DEF	AT last sample examined	DEF	AT

GEOLOGIC 02-FEB-2011 PAGE: 1304

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 371 19886 Date of Summary: 06-MAY-2008 First Sample Examined: Lease Number: G18701 Source of Paleo: OPERATOR 30596 **Borehole MD:** Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28867 **Drilling Operator: ANADARKO PETROLEUM CORPORATION API Well Number:** 608124003000 **Rkb Elevation:** 91 **Sample Range:** 19886 - 30596 Paleo Report Num: 1 of 1 Water Depth: 6284 Public Info Code: Y 21-JUL-2008 **Ecozone Eq MMS:** Y Paleo ID: 001

Remark: Consultant-integrated foram and nanno report, foram and nannofossil species abundance and diversity charts available, see report for details

MD / TVD		Paleo Top Description		<u>Eco</u>	zone
19886 / 19283	DEF	AT first sample examined	DEF	AT	5
19887 / 19284	DEF	IN base of salt	DEF	AT	5
19888 / 19285	DEF	IN out-of-place section	DEF	AT	5
20150 / 19518	POS	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
21050 / 20324	DEF	IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	5
21140 / 20404	POS	AT Lower Pliocene (Zanclian) Globigerina druryi / nepenthes "B"	DEF	AT	5
21440 / 20673	POS	IN Lower Pliocene (Zanclian) Siphotextularia jugosa / "J"	DEF	AT	5
21679 / 20887	DEF	AT Lower Pliocene (Zanclian) Ceratolithus acutus	DEF	AT	5
21680 / 20888	DEF	AT Lower Pliocene (Zanclian) Globigerinoides mitra	DEF	AT	5
21770 / 20969	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	5
23119 / 22175	DEF	IN Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	5
23120 / 22176	DEF	IN Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	5
23600 / 22605	POS	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	5
23690 / 22686	POS	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT	5
24159 / 23106	POS	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	AT	5
24160 / 23107	POS	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	5
24219 / 23160	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	5
24220 / 23161	POS	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	5
25180 / 24022	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT	5
25359 / 24181	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	AT	5
25360 / 24182	POS	AT Middle Miocene (Serravallian) Praeorbulina glomerosa	DEF	AT	5
25840 / 24612	POS	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1305

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block:WR 371Date of Summary:06-MAY-2008First Sample Examined:19886Lease Number:G18701Source of Paleo:OPERATORBorehole MD:30596Well Name:001Paleo Done By:PALEO-DATA, INC.Borehole TVD:28867

Well Name: 001 Paleo Done By: PALEO-DATA, INC. Borehole TVD: 2886

API Well Number: 608124003000 Drilling Operator: ANADARKO PETROLEUM CORPORATION Rkb Elevation: 91
Paleo Report Num: 1 of 1 Sample Range: 1986 - 30596 Water Depth: 6284

Public Info Code: Y 21-JUL-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		Ē	<u>Ecozone</u>
26170 / 24908	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT	5
26200 / 24934	POS	IN Middle Miocene (Langhian) Globigerinatella insueta	DEF	AT	5
26349 / 25068	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	ΑT	5
26350 / 25069	DEF	AT Lower Miocene (Burdigalian) Sphenolithus disbelemnos	DEF	AT	5
26380 / 25095	POS	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	AT	5
26500 / 25203	POS	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	AT	5
26560 / 25256	POS	AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	AT	5
26680 / 25363	DEF	AT out-of-place section	DEF	ΑT	5
26710 / 25390	POS	AT reworked material	DEF	ΑT	5
26769 / 25443	DEF	IN Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	ΑT	5
26770 / 25444	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	ΑT	5
27190 / 25823	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	ΑT	5
27340 / 25956	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	ΑT	5
27390 / 26001	POS	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	ΑT	5
27400 / 26010	POS	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	ΑT	5
27490 / 26089	POS	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	ΑT	5
27520 / 26115	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	ΑT	5
27550 / 26142	POS	AT Lower Oligocene (Rupelian) Nonion struma	DEF	ΑT	5
27670 / 26248	POS	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	ΑT	5
27760 / 26328	POS	AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	ΑT	5
28180 / 26706	POS	AT Lower Oligocene (Rupelian) Globorotalia increbescens	DEF	ΑT	5
28198 / 26722	DEF	IN Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	ΑT	5
28299 / 26813	DEF	AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	ΑT	5
28300 / 26814	DEF	AT Upper Eocene (Priabonian) Globorotalia pomeroli	DEF	ΑT	5

GEOLOGIC

PAGE: 1306

001

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 371 Date of Summary: 06-MAY-2008 First Sample Examined: 19886 Lease Number: G18701 Source of Paleo: OPERATOR **Borehole MD:** 30596 Well Name: 001 Paleo Done By: PALEO-DATA, INC. **Borehole TVD:** 28867 **Drilling Operator:** ANADARKO PETROLEUM CORPORATION **API Well Number:** 608124003000 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 19886 - 30596 6284 Water Depth:

Public Info Code: Y 21-JUL-2008 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description		ļ	Ecozone
28328 / 26839	DEF	AT Upper Eocene (Priabonian) Discoaster saipanensis	DEF	ΑT	5
28329 / 26840	DEF	AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	AT	5
28330 / 26841	DEF	AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	AT	5
28359 / 26867	DEF	AT Middle Eocene (Bartonian) Truncorotaloides rohri	DEF	AT	5
28360 / 26868	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	AT	5
28510 / 27003	DEF	AT Middle Eocene (Bartonian) Chiasmolithus grandis	DEF	AT	5
28538 / 27028	DEF	AT radiolarians	DEF	AT	5
28580 / 27066	POS	AT Middle Eocene (Bartonian) Sphenolithus furcatolithoides	DEF	AT	5
29140 / 27565	POS	AT Lower Eocene (Ypresian) Discoaster multiradiatus	DEF	AT	5
29160 / 27583	DEF	AT radiolarians	DEF	AT	5
29530 / 27913	POS	AT Upper Paleocene (Thanetian) Discoaster diastypus	DEF	AT	5
30596 / 28867	DEF	AT last sample examined	DEF	AT	5

GEOLOGIC 02-FEB-2011 PAGE: 1307

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 Date of Summary: 01-JAN-2001 First Sample Examined: 11605 Lease Number: G16987 Source of Paleo: OPERATOR **Borehole MD:** 25109 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25099 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608124000500 **Rkb Elevation:** 83 **Sample Range:** 11605 - 25109 Paleo Report Num: 1 of 2 8835 Water Depth: Public Info Code: Y 31-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 003

Remark: Calcareous nannofossil report, 18620=Reticulofenestra gelida

MD / TVD		Paleo Top Description		<b>Ecozone</b>
11605 / 11604	DEF	AT first sample examined	DEF	AT
11606 / 11605	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT
11607 / 11606	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
11780 / 11779	DEF	AT Upper Pleistocene (Ionian) Gephyrocapsa aperta	DEF	AT
12950 / 12948	DEF	AT reworked material	DEF	AT
13550 / 13548	DEF	AT reworked material	DEF	AT
13850 / 13848	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT
15410 / 15408	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa caribbeanica (large)	DEF	AT
15411 / 15409	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT
15470 / 15468	DEF	AT reworked material	DEF	AT
15560 / 15558	DEF	AT Lower Pleistocene (Calabrian) Helicosphaera sellii	DEF	AT
15561 / 15559	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa B	DEF	AT
16280 / 16278	DEF	AT reworked material	DEF	AT
16370 / 16368	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
16430 / 16428	POS	AT Upper Pleistocene (Ionian) Gephyrocapsa caribbeanica (flood)	DEF	AT
16520 / 16518	DEF	AT Lower Pleistocene (Calabrian) Lithostromation perdurum	DEF	AT
16940 / 16938	DEF	AT reworked material	DEF	AT
17240 / 17238	DEF	IN Middle Pleistocene (Ionian) Gephyrocapsa margerelli	DEF	AT
17360 / 17358	DEF	AT reworked material	DEF	AT
17629 / 17627	DEF	AT Upper Pliocene (Gelasian) Discoaster brouweri	DEF	AT
17630 / 17628	DEF	AT Upper Pliocene (Gelasian) Calcidiscus macintyrei (increase)	DEF	AT
17631 / 17629	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania lacunosa (acme)	DEF	AT

**GEOLOGIC** 02-FEB-2011 PAGE: 1308

Paleo ID:

003

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 Date of Summary: 01-JAN-2001 First Sample Examined: 11605 Lease Number: G16987 Source of Paleo: OPERATOR **Borehole MD:** 25109

Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25099

Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608124000500 **Rkb Elevation:** 83 8835 Water Depth:

Paleo Report Num: 1 of 2 **Sample Range:** 11605 - 25109

Public Info Code: Y 31-JAN-2011 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		<b>Ecozone</b>
17660 / 17658	DEF	AT reworked material	DEF	AT
17690 / 17688	POS	AT reworked material	DEF	AT
17900 / 17898	POS	AT reworked material	DEF	AT
17930 / 17928	POS	AT reworked material	DEF	AT
17960 / 17958	POS	AT reworked material	DEF	AT
18020 / 18018	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT
18080 / 18078	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT
18200 / 18198	DEF	AT reworked material	DEF	AT
18201 / 18199	POS	AT Upper (Late) Eocene	DEF	AT
18410 / 18408	DEF	AT reworked material	DEF	AT
18411 / 18409	POS	AT Upper (Late) Eocene	DEF	AT
18560 / 18558	DEF	IN Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT
18590 / 18588	DEF	AT reworked material	DEF	AT
18620 / 18618	DEF	AT local marker floral increase	DEF	AT
18650 / 18648	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii "A"	DEF	AT
19250 / 19248	DEF	AT reworked material	DEF	AT
19310 / 19308	DEF	AT Upper Miocene (Tortonian) Discoaster neohamatus	DEF	AT
19460 / 19458	DEF	AT local marker floral increase	DEF	AT
19790 / 19788	DEF	AT Upper Miocene (Tortonian) Discoaster berggrenii "C"	DEF	AT
19820 / 19818	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT
20000 / 19998	DEF	AT reworked material	DEF	AT
20390 / 20388	DEF	AT local marker floral increase	DEF	AT
20480 / 20478	DEF	AT local marker floral increase	DEF	AT
20540 / 20538	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT

GEOLOGIC 02-FEB-2011

PAGE: 1309

003

Paleo ID:

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 Date of Summary: 01-JAN-2001 First Sample Examined: 11605 Lease Number: G16987 Source of Paleo: OPERATOR **Borehole MD:** 25109 Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25099 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608124000500 **Rkb Elevation:** 83 **Sample Range:** 11605 - 25109 8835 Paleo Report Num: 1 of 2 Water Depth:

Public Info Code: Y 31-JAN-2011 Ecozone Eq MMS:

MD / TVD		Paleo Top Description		<b>Ecozone</b>
20541 / 20539	DEF	AT local marker floral increase	DEF	AT
20600 / 20598	DEF	AT local marker floral increase	DEF	AT
20810 / 20808	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	AT
20960 / 20958	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	AT
20961 / 20959	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	AT
20990 / 20988	DEF	AT reworked material	DEF	AT
21050 / 21048	DEF	AT reworked material	DEF	AT
21410 / 21408	DEF	AT reworked material	DEF	AT
21770 / 21768	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis (increase)	DEF	AT
21800 / 21798	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	AT
22280 / 22278	DEF	AT local marker floral increase	DEF	AT
22510 / 22508	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	AT
22730 / 22728	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	AT
22910 / 22908	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	AT
23000 / 22998	DEF	AT local marker floral increase	DEF	AT
23090 / 23088	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	AT
23330 / 23328	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
23390 / 23388	DEF	AT Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	AT
23720 / 23717	DEF	IN Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	AT
23750 / 23747	DEF	AT Middle Miocene (Langhian) Helicosphaera mediterranea	DEF	AT
23780 / 23777	DEF	AT local marker floral increase	DEF	AT
23900 / 23897	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	AT
24200 / 24197	DEF	AT Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
24259 / 24256	DEF	AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	AT

### UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

**GEOLOGIC** 02-FEB-2011

PAGE: 1310

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 11605 Date of Summary: 01-JAN-2001 First Sample Examined: Lease Number: G16987 Source of Paleo: OPERATOR 25109 **Borehole MD:** Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25099 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608124000500 **Rkb Elevation:** 83 Paleo Report Num: 1 of 2 **Sample Range:** 11605 - 25109 8835 Water Depth: Public Info Code: Y 31-JAN-2011 **Ecozone Eq MMS:** Paleo ID: 003

MD / TVD		Paleo Top Description		<b>Ecozone</b>
24260 / 24257	DEF	AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	AT
24290 / 24287	DEF	AT reworked material	DEF	AT
24470 / 24466	DEF	AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	AT
24530 / 24526	DEF	AT reworked material	DEF	AT
24590 / 24585	DEF	AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	AT
24680 / 24675	DEF	IN Lower Miocene (Aquitanian) Cyclicargolithus abisectus	DEF	AT
24830 / 24823	DEF	AT Upper Oligocene (Chattian) Dictyococcites bisectus (increase)	DEF	AT
24860 / 24853	DEF	AT local marker floral increase	DEF	AT
24889 / 24881	DEF	AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	AT
24890 / 24882	DEF	AT Lower Oligocene (Rupelian) Sphenolithus predistentus	DEF	AT
25010 / 25001	DEF	AT local marker floral increase	DEF	AT
25100 / 25090	DEF	AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	AT
25109 / 25099	DEF	AT last sample examined	DEF	AT

MD / TVD

## UNITED STATES DEPARTMENT OF THE INTERIOR MINERALS MANAGEMENT SERVICE GULF OF MEXICO REGION

GEOLOGIC 02-FEB-2011 PAGE: 1311

Ecozono

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 Date of Summary: 01-FEB-2001 11605 First Sample Examined: Lease Number: G16987 Source of Paleo: OPERATOR 25109 **Borehole MD:** Well Name: 002 Paleo Done By: APPLIED BIOSTRATIGRAPHIX **Borehole TVD:** 25099 **API Well Number: 608124000500** Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **Rkb Elevation:** 83 Paleo Report Num: 2 of 2 **Sample Range:** 11605 - 25109 8835 Water Depth: Public Info Code: Y 31-JAN-2011 **Ecozone Eq MMS:** Y Paleo ID: 002

Remark: 11605=at or above Globorotalia inflata, 18710=Orbulina universa flood, 21770=Clavatorella bermudezi, 24320=Cassigerinella chipolensis,

24620=Chilostomelloides oviformis

Pales Top Description

MD/TVD		Paleo Top Description		<u> </u>	cozone
11605 / 11604	DEF	AT first sample examined	POS	AT	4
11606 / 11605	DEF	IN Holocene Globorotalia inflata	DEF	AT	4
11780 /11779	DEF	AT local marker foram increase	DEF	AT	4
11810 /11809	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	5
11870 / 11869	DEF	AT	DEF	AT	4
12080 / 12079	DEF	AT	POS	AT	4
14510 / 14508	POS	AT Lower Pleistocene (Calabrian) Stilostomella antillea	DEF	AT	4
14990 / 14988	DEF	AT	POS	AT	4
15380 / 15378	DEF	AT Lower Pleistocene (Calabrian) Globorotalia incisa	DEF	AT	5
15530 / 15528	DEF	AT local marker foram increase	DEF	AT	5
15950 / 15948	DEF	AT	POS	AT	5
16520 / 16518	POS	AT local marker planktic foram increase	DEF	AT	5
16550 / 16548	DEF	AT	POS	AT	5
17150 / 17148	DEF	AT local marker planktic foram increase	DEF	AT	4
17629 / 17627	DEF	AT local marker planktic foram increase	DEF	AT	5
17630 / 17628	POS	AT Lower Pleistocene (Calabrian) Sphaeroidinella dehiscens (acme "B")	DEF	AT	5
17750 / 17748	DEF	AT Upper Pliocene (Gelasian) Globorotalia crassula (acme)	DEF	AT	5
18169 / 18167	DEF	AT local marker planktic foram increase	DEF	AT	5
18170 / 18168	POS	AT Upper Pliocene (Gelasian) Globorotalia miocenica	DEF	ΑT	5
18410 / 18408	DEF	AT	POS	AT	5
18680 / 18678	DEF	AT Upper Pliocene (Piacenzian) Globorotalia multicamerata	DEF	AT	5

**GEOLOGIC** 02-FEB-2011 PAGE: 1312

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 Date of Summary: 01-FEB-2001 First Sample Examined: 11605 Lease Number: G16987 Source of Paleo: OPERATOR **Borehole MD:** 25109 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 002 **Borehole TVD:** 25099 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608124000500 **Rkb Elevation:** 83 8835 Water Depth:

Paleo Report Num: 2 of 2 **Sample Range:** 11605 - 25109

Public Info Code: Y 31-JAN-2011 **Ecozone Eq MMS:** Y

MD / TVD	Paleo Top Description		Ec	<u>ozone</u>
18710 / 18708 DEF	AT foram flood	DEF	AT	5
18770 / 18768 POS	AT Upper Pliocene (Piacenzian) Globoquadrina altispira	DEF	AT	5
18890 / 18888 DEF	AT	POS	AT	5
19130 / 19128 DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	5
19250 / 19248 POS	AT Lower Pliocene (Zanclian) Cibicides marsi	DEF	AT	5
19610 / 19608 DEF	AT	POS	AT	5
19760 / 19758 DEF	AT	DEF	AT	4
20000 / 19998 POS	IN Lower Pliocene (Zanclian) Sphaeroidinellopsis multiloba	DEF	AT	4
20120 / 20118 DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
20540 / 20538 POS	AT Upper Miocene (Messinian) Textularia tatumi	DEF	AT	4
20599 / 20597 DEF	AT limestone	DEF	AT	4
20600 / 20598 POS	AT Upper Miocene (Tortonian) Globorotalia lenguaensis	DEF	AT	4
20900 / 20898 DEF	AT Arenaceous fauna (local marker)	DEF	AT	4
21140 / 21138 POS	AT Upper Miocene (Tortonian) Cibicides crebbsi	DEF	AT	4
21260 / 21258 POS	AT Upper Miocene (Tortonian) Globoquadrina dehiscens	DEF	AT	4
21470 / 21468 DEF	AT Upper Miocene (Tortonian) Globorotalia mayeri	DEF	AT	4
21648 / 21646 POS	AT unconformity	DEF	AT	6
21649 / 21647 DEF	AT foram flood	DEF	AT	6
21650 / 21648 DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroacuta	DEF	AT	6
21710 /21708 DEF	AT Bathysiphon fauna	DEF	AT	6
21770 /21768 DEF	AT local marker (general)	DEF	AT	6
21800 / 21798 DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	AT	6
21860 / 21858 DEF	AT	DEF	AT	5
22100 / 22098 DEF	AT	DEF	AT	4

GEOLOGIC 02-FEB-2011 PAGE: 1313

Paleo ID:

002

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 425 Date of Summary: 01-FEB-2001 First Sample Examined: 11605 Lease Number: G16987 Source of Paleo: OPERATOR **Borehole MD:** 25109 Paleo Done By: APPLIED BIOSTRATIGRAPHIX Well Name: 002 **Borehole TVD:** 25099 Drilling Operator: BHP BILLITON PETROLEUM (GOM) INC **API Well Number:** 608124000500 **Rkb Elevation:** 83 Paleo Report Num: 2 of 2 **Sample Range:** 11605 - 25109 8835 Water Depth:

Public Info Code: Y 31-JAN-2011 Ecozone Eq MMS: Y

MD / TVD		Paleo Top Description			<b>Ecozone</b>
22220 / 22218	DEF	AT local marker planktic foram increase	DEF	AT	4
22640 / 22638	DEF	AT Arenaceous fauna (local marker)	DEF	ΑT	4
22880 / 22878	DEF	AT local marker foram increase	DEF	ΑT	4
23420 / 23418	DEF	AT local marker foram increase	DEF	ΑT	4
23510 / 23507	POS	AT Lower Miocene (Burdigalian) Robulus chambersi	DEF	ΑT	5
23600 / 23597	DEF	AT	DEF	ΑT	4
24080 / 24077	DEF	AT local marker foram increase	DEF	ΑT	4
24200 / 24197	DEF	AT Lower Miocene (Aquitanian) Globorotalia kugleri	DEF	ΑT	4
24320 / 24317	DEF	AT local marker (general)	DEF	ΑT	4
24440 / 24436	DEF	AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	ΑT	4
24590 / 24585	DEF	AT local marker foram increase	DEF	ΑT	5
24620 / 24615	DEF	AT local marker (general)	DEF	ΑT	5
24890 / 24882	POS	AT Upper Oligocene (Chattian) Globorotalia opima opima	DEF	ΑT	6
24891 / 24883	POS	AT Lower Oligocene (Rupelian) Globorotalia increbescens	DEF	ΑT	6
25109 / 25099	DEF	AT last sample examined	DEF	ΑT	6

GEOLOGIC 02-FEB-2011

PAGE: 1314

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 678 Date of Summary: 23-JAN-2001 First Sample Examined: 17040 Lease Number: G21245 Source of Paleo: OPERATOR **Borehole MD:** 20300 Well Name: 001 Paleo Done By: OPERATOR **Borehole TVD:** 20266 Drilling Operator: UNION OIL COMPANY OF CALIFORNIA **API Well Number:** 608124000400 **Rkb Elevation:** 91 Paleo Report Num: 1 of 1 **Sample Range:** 17040 - 20300 7036 Water Depth: Public Info Code: Y 20-DEC-2010 **Ecozone Eq MMS:** Paleo ID: 001

Remark: St Malo Prospect, calcareous nannofossil report

MD / TVD	Paleo Top Description	<u>Ecozone</u>
17040 / 17013	DEF AT first sample examined	DEF AT
20240 / 20206	DEF IN Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF AT
20300 / 20266	DEF AT last sample examined	DEF AT

GEOLOGIC 02-FEB-2011 PAGE: 1315

Paleo ID:

001

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Public Info Code: Y 10-AUG-2008

Area Block: WR 848 15300 Date of Summary: 04-APR-2008 First Sample Examined: Lease Number: G20403 Source of Paleo: OPERATOR **Borehole MD:** 28842 Well Name: WR001 Paleo Done By: OPERATOR **Borehole TVD:** 28842 **API Well Number: 608124002600 Drilling Operator: EXXON MOBIL CORPORATION Rkb Elevation:** 82 Paleo Report Num: 1 of 1 **Sample Range:** 15300 - 28842 7657 Water Depth:

**Ecozone Eq MMS:** 

Remark: Company-integrated foram and nanno report

MD / TVD		Paleo Top Description		<u>Ec</u>	ozone
15300 / 15300	DEF	AT first sample examined	DEF	AT	6
15359 / 15359	DEF	AT Middle Pleistocene (Ionian) Sphaeroidinella dehiscens (acme)	DEF	AT	6
15360 / 15360	DEF	AT Middle Pleistocene (Ionian) Globorotalia truncatulinoides (coiling change right/left)	DEF	AT	6
15390 / 15390	DEF	AT Middle Pleistocene (Ionian) Gephyrocapsa caribbeanica (increase)	DEF	AT	6
16289 / 16289	DEF	AT Middle Pleistocene (Ionian) Pseudoemiliania ovata	DEF	AT	6
16290 / 16290	DEF	AT Lower Pleistocene (Calabrian) Pseudoemiliania lacunosa "C" (acme)	DEF	AT	6
18080 / 18080	DEF	AT Lower Pleistocene (Calabrian) Gephyrocapsa aperta (acme)	DEF	AT	6
18180 / 18180	DEF	AT Lower Pleistocene (Calabrian) Calcidiscus macintyrei	DEF	AT	6
19227 / 19227	DEF	AT condensed section	DEF	AT	6
19228 / 19228	DEF	AT Upper Pliocene (Gelasian) Discoaster surculus	DEF	AT	6
19229 / 19229	DEF	AT Upper Pliocene (Piacenzian) Discoaster asymmetricus	DEF	AT	6
19230 / 19230	DEF	AT Upper Pliocene (Piacenzian) Discoaster tamalis	DEF	AT	6
19319 / 19319	DEF	AT Lower Pliocene (Zanclian) Sphenolithus abies	DEF	AT	6
19320 / 19320	DEF	AT Lower Pliocene (Zanclian) Reticulofenestra pseudoumbilica	DEF	AT	6
19350 / 19350	DEF	AT Upper Pliocene (Piacenzian) Sphaeroidinellopsis seminulina	DEF	AT	6
19500 / 19500	DEF	AT Lower Pliocene (Zanclian) Dictyococcites antarcticus	DEF	AT	6
19530 / 19530	DEF	AT Upper Miocene (Messinian) Discoaster quinqueramus	DEF	AT	6
19620 / 19620	DEF	AT Upper Miocene (Messinian) Discoaster variabilis (downdip)	DEF	AT	6
19800 / 19800	DEF	AT Upper Miocene (Messinian) Discoaster berggrenii	DEF	AT	6
20340 / 20340	DEF	AT Upper Miocene (Messinian) Reticulofenestra rotaria	DEF	AT	6
20370 / 20370	DEF	AT Upper Miocene (Tortonian) Minylitha convallis	DEF	AT	6
20400 / 20400	DEF	AT Upper Miocene (Tortonian) Catinaster mexicanus	DEF	AT	6

GEOLOGIC 02-FEB-2011 PAGE: 1316

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

Area Block: WR 848Date of Summary: 04-APR-2008First Sample Examined: 15300Lease Number: G20403Source of Paleo: OPERATORBorehole MD: 28842

Well Name: WR001 Paleo Done By: OPERATOR Borehole TVD: 28842

API Well Number: 608124002600 Drilling Operator: EXXON MOBIL CORPORATION Rkb Elevation: 82

 Paleo Report Num:
 1 of 1
 Sample Range:
 15300 - 28842
 Water Depth:
 7657

 Public Info Code:
 Y 10-AUG-2008
 Ecozone Eq MMS:
 Paleo ID:
 001

MD / TVD		Paleo Top Description		<u> </u>	cozone
20760 / 20760	DEF	AT Upper Miocene (Tortonian) Discoaster bollii	DEF	AT	6
20790 / 20790	DEF	AT Upper Miocene (Tortonian) Discoaster hamatus	DEF	AT	6
21000 /21000	DEF	AT Upper Miocene (Tortonian) Catinaster coalitus	DEF	IN	5
21629 / 21629	DEF	AT Upper Miocene (Tortonian) Coccolithus miopelagicus	DEF	IN	5
21630 / 21630	DEF	AT Middle Miocene (Serravallian) Discoaster musicus	DEF	IN	5
21660 / 21660	DEF	AT Middle Miocene (Serravallian) Discoaster kugleri	DEF	IN	5
21810 / 21810	DEF	AT Middle Miocene (Serravallian) Discoaster sanmiguelensis	DEF	IN	5
21990 / 21990	DEF	AT Middle Miocene (Serravallian) Globorotalia fohsi praefohsi	DEF	IN	5
22439 / 22439	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus	DEF	IN	5
22440 / 22440	DEF	AT Middle Miocene (Serravallian) Globorotalia peripheroronda	DEF	IN	5
22590 / 22590	DEF	AT Middle Miocene (Serravallian) Discoaster petaliformis	DEF	IN	5
22740 / 22740	DEF	AT Middle Miocene (Serravallian) Cyclicargolithus floridanus (increase)	DEF	IN	5
22920 / 22920	DEF	AT Middle Miocene (Serravallian) Sphenolithus heteromorphus (acme)	DEF	IN	5
23010 / 23010	DEF	AT Middle Miocene (Langhian) Helicosphaera ampliaperta	DEF	IN	5
23040 / 23040	DEF	AT Middle Miocene (Langhian) Globigerinoides sicanus	DEF	IN	5
23340 / 23340	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (increase)	DEF	IN	5
23520 / 23520	DEF	AT Middle Miocene (Langhian) Globigerinatella insueta	DEF	IN	5
23639 / 23639	DEF	AT Middle Miocene (Langhian) Discoaster deflandrei (acme)	DEF	IN	5
23640 / 23640	DEF	AT Lower Miocene (Burdigalian) Catapsydrax dissimilis	DEF	IN	5
23850 / 23850	DEF	AT Lower Miocene (Burdigalian) Reticulofenestra gartneri	DEF	IN	5
23880 / 23880	DEF	AT Lower Miocene (Burdigalian) Sphenolithus belemnos	DEF	IN	5
24210 / 24210	DEF	AT Lower Miocene (Burdigalian) Discoaster calculosus (increase)	DEF	IN	5
24239 / 24239	DEF	AT Lower Miocene (Burdigalian) Orthorhabdus serratus	DEF	IN	5
24240 / 24240	DEF	AT Lower Miocene (Burdigalian) Triquetrorhabdulus carinatus	DEF	IN	5

**GEOLOGIC** 02-FEB-2011 PAGE: 1317

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 848 Date of Summary: 04-APR-2008 First Sample Examined: 15300 Source of Paleo: OPERATOR Lease Number: G20403 **Borehole MD:** 28842

> Well Name: WR001 Paleo Done By: OPERATOR **Borehole TVD:** 28842

**Drilling Operator: EXXON MOBIL CORPORATION API Well Number:** 608124002600 **Rkb Elevation:** 82

Paleo Report Num: 1 of 1 **Sample Range:** 15300 - 28842 7657 Water Depth: Paleo ID: 001

Public Info Code: Y 10-AUG-2008 **Ecozone Eq MMS:** 

MD / TVD	Paleo Top Description		<u>E(</u>	cozone
24930 / 24930 DE	F AT Lower Miocene (Burdigalian) Triquetrorhabdulus challengeri	DEF	IN	5
24960 / 24960 DE	F AT Lower Miocene (Burdigalian) Globigerina binaensis	DEF	IN	5
25050 / 25050 DE	F AT Lower Miocene (Aquitanian) Helicosphaera recta	DEF	IN	5
25110 / 25110 DE	F AT Upper Oligocene (Chattian) Ericsonia fenestrata	DEF	IN	5
25140 / 25140 DE	F AT Upper Oligocene (Chattian) Sphenolithus delphix	DEF	IN	5
25350 / 25350 DE	F AT Upper Oligocene (Chattian) Globigerina ciperoensis ciperoensis	DEF	IN	5
25380 / 25380 DE	F AT Upper Oligocene (Chattian) Dictyococcites bisectus	DEF	IN	5
25410 / 25410 DE	F AT Upper Oligocene (Chattian) Sphenolithus ciperoensis	DEF	IN	5
25770 / 25770 DE	F AT Upper Oligocene (Chattian) Sphenolithus distentus	DEF	IN	5
25920 / 25920 DE	F AT Upper Oligocene (Chattian) Globorotalia opima	DEF	IN	5
26070 / 26070 DE	F AT Lower Oligocene (Rupelian) Helicosphaera compacta	DEF	IN	5
26160 / 26160 DE	F AT Lower Oligocene (Rupelian) Sphenolithus pseudoradians	DEF	IN	5
26190 / 26190 DE	F AT local marker floral increase	DEF	IN	5
26580 / 26580 DE	F AT Lower Oligocene (Rupelian) Lanternithus minutus	DEF	IN	5
26639 / 26639 DE	F AT Lower Oligocene (Rupelian) Reticulofenestra umbilica	DEF	IN	5
26640 / 26640 DE	F AT Lower Oligocene (Rupelian) Globigerina ampliapertura	DEF	IN	5
26700 / 26700 DE	F AT Lower Oligocene (Rupelian) Ericsonia formosa	DEF	IN	5
26760 / 26760 DE	F AT Upper Eocene (Priabonian) Discoaster barbadiensis	DEF	IN	5
26820 / 26820 DE	F AT Upper Eocene (Priabonian) Cribrocentrum reticulatum	DEF	IN	5
26850 / 26850 DE	F AT Upper Eocene (Priabonian) Globigerinatheka tropicalis / mexicana	DEF	IN	5
27148 / 27148 DE	F AT floral flood	DEF	IN	5
27149 / 27149 DE	F AT Middle Eocene (Bartonian) Pemma papillatum	DEF	IN	5
27150 / 27150 DE	F AT Middle Eocene (Bartonian) Pemma basquensis	DEF	IN	5
27210 / 27210 DE	F AT condensed section	DEF	AT	4

**GEOLOGIC** 02-FEB-2011 PAGE: 1318

Paleo for Public Release (Date Specific)

Start Date: 01-JAN-2008 End Date: 02-FEB-2011

> Area Block: WR 848 Date of Summary: 04-APR-2008 First Sample Examined: 15300 Source of Paleo: OPERATOR Lease Number: G20403 **Borehole MD:** 28842 Well Name: WR001 Paleo Done By: OPERATOR **Borehole TVD:** 28842 **Drilling Operator: EXXON MOBIL CORPORATION API Well Number:** 608124002600 **Rkb Elevation:** 82

> Paleo Report Num: 1 of 1 **Sample Range:** 15300 - 28842 7657 Water Depth: Paleo ID: 001

Public Info Code: Y 10-AUG-2008 **Ecozone Eq MMS:** 

MD / TVD		Paleo Top Description		Ē	<u> Ecozone</u>
27268 / 27268	DEF	AT Middle Eocene (Bartonian) Pemma balium	DEF	AT	4
27269 / 27269	DEF	AT Middle Eocene (Bartonian) Morozovella lehneri	DEF	ΑT	4
27270 / 27270	DEF	AT Middle Eocene (Bartonian) Globorotalia bullbrooki	DEF	ΑT	4
27300 / 27300	DEF	AT Middle Eocene (Bartonian) Sphenolithus furcatolithoides	DEF	ΑT	4
27360 / 27360	DEF	AT Middle Eocene (Bartonian) Chiasmolithus solitus	DEF	ΑT	4
27420 / 27420	DEF	AT Middle Eocene (Bartonian) Chiasmolithus gigas	DEF	ΑT	4
27450 / 27450	DEF	AT radiolarians	DEF	ΑT	4
27508 / 27508	DEF	AT unconformity	DEF	ΑT	4
27509 / 27509	DEF	AT local marker floral decrease	DEF	ΑT	4
27510 / 27510	DEF	AT local marker foram decrease	DEF	ΑT	4
27570 / 27570	POS	AT Lower Eocene-Upper Paleocene Wilcox Group/Provincial Stage	POS	ΑT	4
27628 / 27628	POS	AT maximum flooding surface	POS	ΑT	4
27629 / 27629	DEF	AT Lower Eocene (Ypresian) Tribrachiatus contortus	POS	ΑT	4
27630 / 27630	DEF	AT Lower Eocene (Ypresian) Morozovella acuta	POS	ΑT	4
28520 / 28520	POS	AT maximum flooding surface	POS	ΑT	4
28530 / 28530	DEF	AT Arenaceous fauna (local marker)	POS	ΑT	4
28740 / 28740	POS	IN Upper Paleocene (Thanetian) Fasciculithus tympaniformis	POS	ΑT	4
28842 / 28842	DEF	AT last sample examined	POS	ΑT	4